



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Arabic-V

Course Code: ARB-301 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

10

نوٹ: صحیح جوابات پر دائرہ لگائیے۔ کاٹ کر لکھا گیا جواب درست تصور نہیں کیا جائے گا۔

Q.1 اختر الجواب الصحيح.

۱- ہاجر النبي ﷺ إلى يثرب في السنة _____ من النبوة.

(الف) العاشرة (ب) الحادية عشرة (ج) الثانية عشرة (د) الثالثة عشرة

۲- كم أنواعا للنثر؟

(الف) نوعان (ب) ثلاثة أنواع (ج) أربعة أنواع (د) خمسة أنواع

۳- ولد أحمد شوقي بـ _____.

(الف) مكة (ب) القاهرة (ج) بغداد (د) الشام

۴- لقب _____ بملك الضليل.

(الف) امرؤ القيس (ب) عمرو بن كلثوم (ج) الأخطل (د) عمرو بن معد يكرب

۵- من خطب "إنه من عاش مات ومن مات فات"؟

(الف) الخنساء (ب) قس بن ساعدة (ج) سحبان بن وائل (د) عمرو بن معد يكرب

۶- من قال "هذا الذي تعرف البطحاء وطأته"؟

(الف) أبو نواس (ب) أبو العتاهية (ج) الأخطل (د) الفرزوق

۷- لقب الشاعر الجاهلي بلقب الشاعر الحكيم _____.

(الف) زهير بن أبي سلمى (ب) النابغة الذبياني (ج) عمرو بن معد يكرب (د) الحارث بن حلزة

۸- قال النبي ﷺ _____ "اهجهم ومعك روح القدس".

(الف) للنابغة الذبياني (ب) لعنترة العبسي (ج) لطفة بن العبد (د) لحسان بن ثابت رضي الله عنه

۹- عدد المعلقات هي _____.

(الف) خمس (ب) سبع (ج) ثمان (د) تسع

۱۰- من ألف كتاب "فحول الشعراء"؟

(الف) ابن قتيبة (ب) الحريري (ج) أبو تمام (د) المتنبي



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Arabic-V

Course Code: ARB-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

نوٹ: نیچے دیے گئے اجزاء کے جوابات لکھیے۔

5x4=20

-Q.2

(i) عربی میں ترجمہ کریں۔

- a). This is your book. b). I love my country.
c). My father is engineer. d). Her book is in my bag.

(ii) انگریزی میں ترجمہ کریں۔

(الف) إذا جاء نصر الله والفتح. (ب) عندی قلم جدید.

(ج) قل هو الله أحد. (د) نحن المسلمون.

(iii) ما هي أغراض الشعر الجاهلي؟ (شعر جاہلی کے اغراض و مقاصد عربی میں بیان کریں)

(iv) ماذا تعرف عن عمرو بن كلثوم ومعلقته؟ (عمرو بن کلثوم و معلقته کے بارے میں آپ کیا جانتے ہیں؟ عربی میں لکھیں)

(v) اذكر عن أحمد شوقي وشعره؟ (احمد شوقی اور ان کی شاعری پر عربی میں لکھیے)

10x3=30

تفصیلاً جوابات لکھیے۔

-Q.3 عربی ادب کی تاریخ اور اس کے ادوار پر روشنی ڈالیں۔

-Q.4 عربی فن خطابت پر مفصل نوٹ لکھیں۔

-Q.5 عرف الشعر، واذکر مكانته عند العرب. (شعر کی تعریف کریں اور عربوں کے ہاں شعر کا مقام و مرتبہ عربی میں بیان کریں)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Classical Mechanics

Course Code: PHY-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q 2. Show explicitly that

$$\frac{\partial \mathbf{x}}{\partial q_i} = \frac{\partial \dot{\mathbf{x}}}{\partial \dot{q}_i} \quad (5)$$

where $\mathbf{x} = \mathbf{x}(q_1, q_2, \dots, q_n, t)$.

Q 3. State Hamilton's principle of least action and use it to derive

$$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{q}_i} \right) - \frac{\partial L}{\partial q_i} = 0. \quad (5)$$

Q 4. If L is a Lagrangian for a system of n degrees of freedom satisfying Lagrange equation of motion, show by direct substitution that

$$L' = L + \frac{d}{dt} F(q_1, \dots, q_n, t),$$

also satisfies the Lagrange's equation of motion where F is an arbitrary differentiable function of its argument.

Q 5. Consider a one parameter family of transformations

$$q_i(t) \rightarrow Q_i(s, t) \quad s \in \mathbb{R} \quad (5)$$

such that $Q_i(0, t) = q_i(t)$. Show that if the Lagrangian is invariant under this transformation, then there exists a conserved quantity (Noether's Theorem)

Q 6. Consider the motion of a particle in a central force field

$$V(r) = -\frac{k}{r}. \quad (10)$$

Write down the Lagrangian in polar coordinates and integrate the equation of motion to derive

$$\theta(r) = \int \frac{l \, dr}{r^2 \sqrt{2\mu \left(E + \frac{k}{r} - \frac{l^2}{2\mu r^2} \right)}} + \text{constant},$$

P.T.O.

where E is the total energy and l is the angular momentum. Now change variables as $u = \frac{l}{r}$ to derive the equation of a conic section

$$\frac{\alpha}{r} = 1 + \varepsilon \cos \theta.$$

Q 7. (a) Show that the transformation

(5)

$$\begin{aligned} q &= PQ^2 \\ p &= \frac{1}{Q}, \end{aligned}$$

is canonical and also show that the corresponding generating function is

$$F = \frac{q}{Q}$$

(b) Find the force law for a central force field that allows a particle to move in a logarithmic spiral orbit given by

(5)

$$r = k \exp(\alpha \theta)$$

where k and α are constants

Q 8. (a) Show that, if a transformation from (q, p) to (Q, P) be canonical then the bilinear form

$$\sum_i (\delta p_i dq_i - \delta q_i dp_i), \quad (5)$$

is invariant under the canonical transformation.

(b) Show that the equation of a curve for which surface area is minimum is a catenary

(5)

$$x = a \cosh \frac{y - b}{a}$$

where a and b are constants.



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Fifth Semester – 2019

Examination: B.S. 4 Years Program

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PAPER: Classical Mechanics

MAX. TIME: 15 Min.

Course Code: PHY-301 Part-I (Compulsory)

MAX. MARKS: 10

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Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

(i) The degree of freedom of a two particles system moving freely in space is

- (a) 4
- (b) 2
- (c) 3
- (d) 6

(ii) Hamiltonian of a system describes its

- (a) time evolution
- (b) space evolution
- (c) state
- (d) constraints

(iii) The brachistochrone problem is the

- (a) least area problem
- (b) least distance problem
- (c) least time problem
- (d) least energy problem

(iv) If the Lagrangian does not involve a particular coordinate q_i such coordinate is called

- (a) Angle coordinate.
- (b) Fictitious coordinate
- (c) Complete coordinate
- (d) Cyclic coordinate.

(v) Equation of conics $r = \frac{h}{1+e \cos \theta}$ draws a parabola when

- (a) $e = 1$
- (b) $e > 1$
- (c) $e < 1$
- (d) $e = 0$

P.T.O.

(vi) The canonical transformations preserve

- (a) Lagrange equations
- (b) Hamilton's equations
- (c) Poisson equations
- (d) None

(vii) The shortest distance between two points on a curved surface is

- (a) a straight line
- (b) a geodesic
- (c) a tangent
- (d) a semi-circle

(viii) If the Lagrangian is cyclic in q_i , then:

- (a) p_i is not conserved.
- (b) p_i is conserved.
- (c) q_i appears in the Lagrangian
- (d) \dot{q}_i does not appear in the Lagrangian

(ix) Scleronomous constraints have

- (a) explicit time dependence
- (b) no explicit time dependence
- (c) explicit force dependence
- (d) no explicit force dependence

(x) Kepler's second Law of planetary motion directly follows from

- (a) Conservation of linear momentum
- (b) Conservation of angular momentum
- (c) Homogeneity of time
- (d) Homogeneity of space



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

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PAPER: Psycho-Pathology

MAX. TIME: 15 Min.

Course Code: APSY-351 Part-I (Compulsory)

MAX. MARKS: 10

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Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- 1- GABA inactivity is one of the important factor in
 - a) Eating disorders
 - b) Depression
 - c) Anxiety
 - d) Both B and C
- 2- Cognitive therapy was given by ?
 - a) John Locke
 - b) Watson
 - c) Arron Beck
 - d) None of them
- 3- Equal prevalence in men and women is found for
 - a) OCD
 - b) Anorexia
 - c) GAD
 - d) None of above
- 4- Serotonin level is most important for the normal function of
 - a) Limbic system
 - b) Occipital Lobe
 - c) Cerebellum
 - d) Frontal Lobe
- 5- Ellis's rational-emotive therapy (RET) describe
 - a) Point out irrational assumptions
 - b) Suggest more appropriate assumptions
 - c) Assign related home work
 - d) All above

P.T.O.

6- The term schizophrenia can be interpreted to mean

- a) A split between thought and emotion
- b) Having more than one personality
- c) The same thing as a dissociative reaction.
- d) That a person is insane.

7- When a person's sexual identity does not match his or her physical gender, the diagnosis is

- a) Paraphilia.
- b) Sexual dysfunction.
- c) Gender identity disorder.
- d) Androgyny.

8- It has been discovered that all major anti-psychotic drugs

- a) Block the action of dopamine.
- b) Facilitate the action of dopamine.
- c) Increase levels of dopamine.
- d) Decrease levels of dopamine.

9- A researcher seeking an organic basis for schizophrenia would be well-advised to investigate the role of

- a) Amphetamines and amphetamine receptors.
- b) Adrenaline and noradrenaline.
- c) Histamine and antihistamine.
- d) Dopamine and dopamine receptors.

10- Which of the following is characteristic of a dissociative disorder?

- a) phobic disorder
- b) amnesia
- c) paranoia
- d) depression



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Roll No.

PAPER: Psycho-Pathology

Course Code: APSY-351 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Short questions.

(4x5=20)

- 1- Define Panic disorder briefly.
- 2- What is the difference between bipolar I and bipolar II?
- 3- Define four D's for explaining abnormal behavior.
- 4- Explain eating disorder and name the types of eating disorder.

Q.3. Long questions.

(3x10=30)

- 1- Define the most common etiological factors of Schizophrenia.
- 2- Write down a detail note on the symptoms of the three types of dissociative disorders.
- 3- How can you differentiate between histrionic and borderline personality disorder?



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Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

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PAPER: School and Perspectives in Psychology
Course Code: APSY-352 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

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This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. According to Freud, unpleasant or unacceptable are pushed back into unconscious is :
 - a) Sublimation
 - b) Regression
 - c) Projection
 - d) Repression
2. Which psychologist took the position that organism tends to repeat responses that lead to positive outcomes and vice versa.
 - a) Abraham Maslow
 - b) Carl Rogers
 - c) Sigmund Freud
 - d) B.F Skinner
3. Which of the following term refers to the mental processes involved in acquiring knowledge?
 - a) Introspection
 - b) Empiricism
 - c) Cognition
 - d) Pedagogy
4. Who is the father of modern medicine?
 - a) Ibn-e-Sina
 - b) Al-Ghazali
 - c) Ashraf Ali Thanvi
 - d) Aristotle
5. Which of the following did Carl Rogers believe fosters a congruent self-concept.
 - a) Conditional Love
 - b) Appropriate role models
 - c) Immediate need gratification
 - d) Unconditional Love
 - e) None of the above
6. Social Learning Theory was given by :
 - a) Ivan Pavlov
 - b) B.F.Skinner
 - c) Albert Bandura
 - d) John B. Watson

P.T.O.

7. The tendency in our perception to complete the incomplete figures, to fill in gaps is called _____.
- a) Principle of proximity
 - b) Principle of similarity
 - c) Principle of Closure
 - d) Principle of Simplicity
8. According to Freud, _____ is the structure of personality which develops early in life when the child assimilates the rules of conduct taught by parents or caregivers through a system of rewards or punishments.
- a) Id
 - b) Ego
 - c) Superego
 - d) None of the above
9. Expressing an id impulse that is opposite of the one that is driving the person is called _____.
- a) Projection
 - b) Rationalization
 - c) Reaction Formation
 - d) Denial
10. Failure to compensate adequately for inferiority feelings can lead to development of an inferiority complex, was postulated by :
- a) Carl Jung
 - b) Alfred Adler
 - c) Karen Horney
 - d) Gordon Allport



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: School and Perspectives in Psychology

Course Code: APSY-352 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2: Write short answers of the following questions. (5x4=20)

1. What is difference between personal unconscious and collective unconscious?
2. Differentiate between positive and negative punishment.
3. Define and explain the concept of extinction and spontaneous recovery.
4. Briefly elaborate concepts of id, ego and super ego.
5. Briefly explain Maslow's Hierarchy of needs theory.

Q3: Write detailed answers of the following questions. (3x10=30)

1. Discuss Biological perspective in detail.
2. Discuss the main features of Cognitive behavioral perspective by Albert Ellis.
3. Explain Gestalt perspective and highlight the major contributors.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

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PAPER: School and Perspectives in Psychology
Course Code: APSY-352 Part-I (Compulsory)

MAX. TIME: 15 Min.
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 - c) Karen Horney
 - d) Gordon Allport



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Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: School and Perspectives in Psychology

Course Code: APSY-352 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2: Write short answers of the following questions. (5x4=20)

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5. Briefly explain Maslow's Hierarchy of needs theory.

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Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Developmental Psychology

Course Code: APSY-353 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2 Write brief answer of the following.

1. Differentiate between fine motor skills and gross motor skills. 4
2. Differentiate between accommodation and assimilation. 4
3. How fluid intelligence is different as compared to crystallized intelligence? 4
4. What is meant by sandwich generation? 2
5. Briefly describe occupational and family adjustment in middle adulthood. 4
6. What are stereotypes related to Aging? 2

Q.3 what are environmental factors that affect pregnancy and child birth. 10

Q.4 Mention information processing approaches related to child development. 10

Q.5 Write note on any two of the following 5+5

- a. Social cognitive theory
- b. ecological system
- c. learning theory



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Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

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PAPER: Developmental Psychology
Course Code: APSY-353 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

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Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. What did Freud consider to be the role of the "id"?
 - a) To represent innate, instinctive desires and impulses.
 - b) To be aware of the needs and feelings of those around us.
 - c) To moderate our impulses, acting as the moral conscience of the mind.
2. A person who is anally expulsive might exhibit what behavior according to Freud?
 - a) Over-regular use of the bathroom.
 - b) Messiness and disorganization.
 - c) Quietness, afraid to socialize.
3. Who would a boy experiencing an Oedipus complex pursue the affection of?
 - a) Father
 - b) Mother
 - c) Sibling
4. According to Vygotsky, cognitive development depends on:
 - a) Environmental pressure.
 - b) Mental maturity.
 - c) Social interactions.
5. The task that an individual can accomplish only with the assistance of a more experienced person represents the learner's:
 - a) Area of cognitive dissonance.
 - b) Zone of proximal development.
 - c) Learning opportunity.
6. In looking at Kohlberg's views of morality, Gilligan argues that men and women have different "voices" in relation to moral decision making. She labels these differences as the morality of _____ for men and morality of _____ for women.
 - a) Justice; Caring
 - b) Caring; Justice
 - c) Superiority; Inferiority
7. When Umer's mom made him peanut butter and jelly sandwiches, she always folded the sandwich bread corner-to-corner. When Umer became old enough to make his own sandwiches, he always folded the bread corner-to-corner, too. Umer learned his sandwich-making techniques through:
 - a) Modeling
 - b) Operant conditioning
 - c) Punishment

P.T.O.

8. If a new event is experienced that is very similar to the event in the original learning context, the learned behavior may be extended to this new event, bringing about broader change. This phenomenon is called:
- Follow through
 - Generalization
 - Behavior Transfer
9. You are doing a demonstration with Amna, who is three years old. You have two equal-sized glasses, filled to the top with the same volume of water. You ask her whether there is more water in one glass than the other, or the same, and she responds, "The same." Now, you pour the entire contents of one of these glasses into a tall, thin glass, and the entire contents of the other into a short, but very wide, glass. You ask her which glass contains more water, and she points to the tall glass. Which of Piaget's cognitive stages of development is Amna in?
- Preoperational thought
 - Concrete operational thought
 - Formal operational thought
10. What are the five levels of environmental influence, from intimate to broad?
- Microsystems, mesosystem, exosystem, macrosystem, chronosystem
 - Exosystem, microsystem, chronosystem, macrosystem, mesosystem
 - Chronosystem, mesosystem, microsystem, exosystem, macrosystem
 - Microsystem, mesosystem, macrosystem, exosystem, chronosystem



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Psychological Assessment
Course Code: APSY-354 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(10 x 2 = 20)

1. Define validity.
2. Define right to privacy and confidentiality.
3. Briefly describe split half and parallel form reliability.
4. Define the term “Projective Hypothesis”
5. Define neuropsychological testing.
6. Define Luria ‘s concept of *pluripotentiality*
7. Elaborate the contribution of James McKean Cattell.
8. Differentiate between error of estimate and error of measurement.
9. Give the definition of intelligence as given by David Wechsler.
10. Differentiate between a trait and a state with example.

Q.3. Questions with brief answers.

(3 x 10 = 30)

1. Define Norms. Briefly describe various types of Norms.
2. Describe item difficulty index and item discrimination index with reference to item analysis.
3. Briefly describe the ethical issues in Psychological testing and assessment.



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PAPER: Psychological Assessment

Course Code: APSY-354 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. One's general potential, independent of prior learning, can best be described as
 - a. achievement.
 - b. ability.
 - c. intelligence.
 - d. aptitude.

2. Personality tests in which the test stimulus and/or required response are ambiguous are called
 - a. unstructured personality tests.
 - b. projective personality tests.
 - c. self-report personality tests.
 - d. structured personality tests.

3. When person knows that he is being observed, his behavior changes. This phenomenon is called
 - a. expectancy effect
 - b. reinforcement
 - c. reactivity
 - d. drift

4. The Spearman Brown formula corrects for deflated reliability due to
 - a. small sample size.
 - b. half-length tests.
 - c. systematic error.
 - d. poor test item construction.

5. "Face validity" is
 - a. the best evidence for validity.
 - b. not really a form of validity because it offers no evidence to support conclusions.
 - c. the correlation between a test score and some poorly established criterion.
 - d. acceptable for research studies but not for tests used in clinical practice.

P.T.O.

6. A reliability coefficient of .60 suggests that
 - a. the test can be used for clinical purposes, but not for research.
 - b. 60% of the variance on the test is error.
 - c. 64% of the variance on the test is error.
 - d. 40% of the variance on the test is error.

7. Intelligence and aptitude are different constructs because
 - a. intelligence is general ability and aptitude is specific
 - b. intelligence and aptitude theories are proposed by different researchers
 - c. both are tested using different tests
 - d. career selection involves aptitude testing but not intelligence testing

8. Which of the following statistical method was used by Raymond Bernard Cattell in the study of Personality tests?
 - a. Phrenology
 - b. Identification
 - c. Regression analysis
 - d. Factor analysis

9. If a person scores low on one test and also have a low score on other test the two scores are said to be
 - a. Positively Correlated
 - b. Negatively correlated
 - c. Perfectly correlated
 - d. Simply correlated

10. The determinants of response to Rorschach Inkblot test include
 - a. Form, Size, Shading, Movements
 - b. Form, Color, Shading, Movements
 - c. Size, Shading, Movements
 - d. Form, Size, Shedding



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Psychological Assessment

MAX. TIME: 15 Min.

Course Code: APSY-354 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. One's general potential, independent of prior learning, can best be described as
 - a. achievement.
 - b. ability.
 - c. intelligence.
 - d. aptitude.

2. Personality tests in which the test stimulus and/or required response are ambiguous are called
 - a. unstructured personality tests.
 - b. projective personality tests.
 - c. self-report personality tests.
 - d. structured personality tests.

3. When person knows that he is being observed, his behavior changes. This phenomenon is called
 - a. expectancy effect
 - b. reinforcement
 - c. reactivity
 - d. drift

4. The Spearman Brown formula corrects for deflated reliability due to
 - a. small sample size.
 - b. half-length tests.
 - c. systematic error.
 - d. poor test item construction.

5. "Face validity" is
 - a. the best evidence for validity.
 - b. not really a form of validity because it offers no evidence to support conclusions.
 - c. the correlation between a test score and some poorly established criterion.
 - d. acceptable for research studies but not for tests used in clinical practice.

P.T.O.

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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Psychological Assessment

Course Code: APSY-354 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(10 x 2 = 20)

1. Define validity.
2. Define right to privacy and confidentiality.
3. Briefly describe split half and parallel form reliability.
4. Define the term “Projective Hypothesis”
5. Define neuropsychological testing.
6. Define Luria ‘s concept of *pluripotentiality*
7. Elaborate the contribution of James McKean Cattell.
8. Differentiate between error of estimate and error of measurement.
9. Give the definition of intelligence as given by David Wechsler.
10. Differentiate between a trait and a state with example.

Q.3. Questions with brief answers.

(3 x 10 = 30)

1. Define Norms. Briefly describe various types of Norms.
2. Describe item difficulty index and item discrimination index with reference to item analysis.
3. Briefly describe the ethical issues in Psychological testing and assessment.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Research Methods-I

Course Code: APSY-356 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Write short answers to the following questions.

(4x5=20)

1. Differentiate between grounded theory and interpretative phenomenology?
2. Differentiate between independent and dependent variables.
3. What is theoretical frame work for a research
4. What does APA's code of ethics say deception?
5. Differentiate between directional and non-directional hypotheses

Q.3. Write long answers to the following questions.

(3x10=30)

1. Discuss non probability sampling techniques.
2. Explain experimental method of research
3. Explain limitations of scientific research



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Research Methods-I

MAX. TIME: 15 Min.

Course Code: APSY-356 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Accepting the information in an instructor's lecture without examining the book or asking about sources of the ideas is an example of _____ way of knowing about be
 - a. authority
 - b. logic.
 - c. intuition.
 - d. science

2. A correlational study is uniquely useful for meeting which of the following goals of the scientific method?
 - a. description
 - b. application
 - c. prediction
 - d. explanation

3. Responses from a sample can be generalized to the population of interest when which of the following characteristics of the sample is present?
 - a. efficiency
 - b. responsivity
 - c. representativeness
 - d. social desirability

4. If an investigator defines intelligence in terms of number of questions correctly answered on an IQ test he or she has used
 - a. rationalism
 - b. scientific technique
 - c. reference to extraneous variable
 - d. Operational definition

5. In order to obtain data for a research project, a student divides the population of students into graduate and under graduate and selects the students randomly from the two groups separately. Sampling technique used is
 - a. random sample.
 - b. convenience sample.
 - c. stratified random sample.
 - d. probability sample.

P.T.O.

6. In a cross sectional research, data is collected on different variables
- In a sequence with independent variable is measured before dependent variable
 - At different points of time.
 - In a sequence with dependent variable is measured before independent variable
 - at one point of time.
7. A Research starts with hypothesis is
- quantitative and exploratory.
 - qualitative and exploratory.
 - quantitative and confirmatory.
 - qualitative and confirmatory
8. Which of the following ethical issues is considered important when researchers conduct research on the Internet?
- secondary sources
 - privacy and confidentiality
 - providing assent to participate
 - debriefing
9. According to publication manual of the American Psychological Association list of references is given in
- in the same sequence as in text.
 - Alphabetically
 - from earlier to recent years of publication
 - randomly
10. When using a direct quote (exact words) from a source, it is appropriate to
- cite the source with the quote.
 - use quotation marks around the quoted material.
 - cite the source at the end of the paragraph.
 - (a) and (b)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Research Methods-I

Course Code: APSY-356 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

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3. Explain limitations of scientific research



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Research Methods-I
Course Code: APSY-356 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

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 - Alphabetically
 - from earlier to recent years of publication
 - randomly
10. When using a direct quote (exact words) from a source, it is appropriate to
- cite the source with the quote.
 - use quotation marks around the quoted material.
 - cite the source at the end of the paragraph.
 - (a) and (b)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019
Examination: B.S. 4 Years Program

Roll No.

PAPER: Statistics in Psychology
Course Code: APSY-357 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers. (10 x 2 = 20)

1. Define frequency distribution and its types.
2. Write down empirical relationship between mean, median and mode when data is normal.
3. Define Z-score and its purpose.
4. Define type I and type II errors.
5. What are measures of dispersion/variability?
6. Define level of significance and p-value.
7. Differentiate between regression and correlation.
8. What is Critical region?
9. Write down name of common Non-parametric tests.
10. What do you mean by tied ranks?

Q.3. Questions with brief answers. (3 x 10 = 30)

1: The skull breadths of a certain pupation of rodent follows normal distribution with mean 50 mm and standard deviation 10 mm. Find the proportion of rodents whose skull breadth is

- i. More than 75 mm
- ii. Less than 40 mm

Marks 10

2: For the given data below, the marks in two subjects "X" and "Y"

X	26	25	33	35	22	48	18	20	41	49
Y	43	89	42	73	34	51	82	28	39	85

- i. Compute Pearson's correlation coefficient. Marks 10

3: Following are pre course and post course scores of students. Find if there is any significant mean difference at alpha .01. Marks 10

Pre	18	21	16	22	19	24	21	17	18	14
Post	22	25	17	24	29	30	29	27	20	20



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Statistics in Psychology

Course Code: APSY-357 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Which of the following is affected by extreme scores?

- (a) The mean
- (b) The median
- (c) The mode
- (d) None of the above will be affected

2. Appropriate graph to present frequencies of three categories of products is

- (a) bar diagram
- (b) histogram
- (c) polygon
- (d) ogive

3. In my experiment, I am going to investigate how sleep affects anxiety. The number of hours of sleep the subjects have is called the _____ variable.

- (a) Independent
- (b) Extraneous
- (c) Dependent
- (d) Control

4. Power of a test is

- (a) the probability of accepting the null hypothesis when it is true.
- (b) the probability of accepting the null hypothesis when it is false.
- (c) the probability of rejecting the null hypothesis when it is true.
- (d) the probability of rejecting the null hypothesis when it is false.

5. Assume that a chi-square test is to be performed on a contingency table with four rows and four columns. What should be the degree of freedom?

- (a) 16
- (b) 4
- (c) 8
- (d) 9

P.T.O.

6. The analysis of variance is used in testing

- a. the equality of more than two population variances
- b. the equality of more than two population means
- c. the equality of more than two population standard deviations
- d. none of these

7. If the independent and dependent variables both increase in an estimating equation, the coefficient of correlation will be in the range

- e. 0 to -1
- f. 0 to 1
- g. Exact zero
- h. None of these

8. If $a = 4$ and $b = 2$ for a particular regression equation and the independent variable has a value of 3, then the value of dependent variable is

- a. 14
- b. 10
- c. 9
- d. -2

9. To perform the Mann-Whitney test,

- a. the scores are ranked separately for each group.
- b. the scores are combined into one large group before ranking.
- c. the two groups must be the same size.
- d. the ranks for one group are added to the ranks for the other group.

10. Chi square test of independence measures

- e. if two variables are different from each other
- f. if two variables are independent of each other
- g. if variables follow a theoretical distribution
- h. both b and c



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Credit Management

Course Code: BBA-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers to the following questions.

(10x2=20)

1. What is credit Policy?
2. What is appraisal of credit proposal?
3. What are collateral securities?
4. What is collection policy appraisal?
5. What are the margin requirements?
6. What is collection policy?
7. What is commercial credit?
8. What is defining default premium?
9. What is credit management?
10. What is function of credit department?

Q.3. Answers all the following questions briefly.

(3x10=30)

- Explain the model of creating changes of securities? Commercial VS Bank credit?
- Explain the analysis of credit information and its financial and non financial factors?
- Briefly explain the role of the working capital management in light of credit management?



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Credit Management

Course Code: BBA-301 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- 1) Bailment of goods as security for payment of debt is called.
 - A) Mortgage
 - B) Pledge
 - C) Hypothecation
 - D) Both A and B

- 2) Credit risk management an important issue in
 - A) Partnership
 - B) Sole proprietorship
 - C) Banking
 - D) None of the above

- 3) The net present value of a capital budgeting project is
 - A) The present value of the expected future cash flows divided by the initial cash outflow
 - B) The difference between the present value of the expected future cash flows and the initial cash outflow
 - C) The initial cash outflow divided by the average of expected future cash inflows
 - D) The initial cash outflow divided by the present value of the expected future cash flows

- 4) When working capital management is discussed, _____ and _____ tend to be thought of as forms of spontaneous financing.
 - A) Short-term debt, cash
 - B) Accounts payable, short-term debt
 - C) Accruals, cash
 - D) Accounts accruals

- 5) For a given maturity, which of the following securities has the lowest return
 - A) Commercial paper
 - B) Negotiable certificates of deposit
 - C) Treasury bills
 - D) Eurodollar deposits

P.T.O.

- 6) **The basic rationale for extending credit is to**
- A) Reduce bad-debt losses
 - B) Increase sales
 - C) Increase the firm's investments in receivables
 - D) Reduce collection costs
- 7) **In capital budgeting, the hurdle rate is**
- A) The minimum rate of return acceptable to the firm
 - B) Essentially the same as the prime rate
 - C) The cost of equity, since it is higher than the cost of debt
 - D) The internal rate of return on a project
- 8) **Credit information Bureau is established in**
- A) 1990
 - B) 1991
 - C) 1993
 - D) 1994
- 9) **A credit analyst have to consider the drives of the firms economic future**
- A) Future earnings and cash flows
 - B) Capital Structure
 - C) Liquidity of assets
 - D) None of the above
- 10) **Capital adequacy ratio is also known as**
- E) Capital to risk asset ratio
 - F) Capital risk premium
 - G) Capital Budgeting
 - H) CAMEL



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Business Research Methods

Course Code: BBA-302 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.No.2. Define the followings:

(10x2= 20)

- i. What is descriptive research?
- ii. Define Simple Random Sampling?
- iii. Define ratio scale with the help of an example.
- iv. Differentiate between cross sectional and longitudinal research.
- v. Explain semi structured interview.
- vi. What is meant by deductive reasoning?
- vii. Write down two advantages and two disadvantages of external researcher.
- viii. Explain funneling technique of questioning?
- ix. Explain any two possible threats to internal validity in experimental design.
- x. Pros and Cons of observational studies

Q.No.3. What is hypothetico-deductive method of research? Explain the steps involved in this method of research with the help of an example.

(10)

Q.No.4. What is reliability and validity in research? How can you assess the reliability and validity of qualitative research?

(10)

Q.No.5. What is stratified sampling technique? What are its different types? Give an example of a situation where you would use stratified sampling.

(10)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Business Research Methods
Course Code: BBA-302 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. The degree of exactness or exactitude in scientific research is known as
 - a) Purposiveness
 - b) Rigour
 - c) Objectivity
 - d) Testability

2. The artificial study setting is known as
 - a) Artificial study
 - b) Contrived
 - c) Non-contrived
 - d) Both a and b

3. A scale that measures both the direction and intensity of the attributes of a concept
 - a) Staple scale
 - b) Dichotomous scale
 - c) Likert scale
 - d) Constant sum rating scale

4. A subset or subgroup of the population chosen for study
 - a) Subject
 - b) Sample
 - c) Population frame
 - d) Element

5. The hypothesis “what is the distribution of hypertensive patients by income level?” is an example of
 - a) Descriptive hypothesis
 - b) Relational hypothesis
 - c) Correlational hypothesis
 - d) Causal hypothesis

6. The most powerful scale:
 - a) Nominal scale
 - b) Ordinal scale
 - c) Interval scale
 - d) Ratio scale

P.T.O.

7. The paired comparison scale is used when, among a small number of objects, respondents are asked to choose between _____ objects at a time.
- Two
 - Three
 - Four
 - None of these
8. _____ is a test of how consistently a measuring instrument measures whatever concept it is measuring.
- Validity
 - Reliability
 - Content validity
 - Construct validity
9. A question that lends itself to different possible responses to its subparts is called
- a:
- Loaded question
 - Leading question
 - Double-barreled question
 - Ambiguous question
10. Collecting the necessary data without becoming integral part of the organizational system:
- Participant-observer
 - Non participant-observer
 - Assistant observer
 - None of these



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Company Law

MAX. TIME: 15 Min.

Course Code: BBA-303 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- 1) When SECP act was passed:
 - a) 1992
 - b) 1996
 - c) 2000
 - d) 2004
- 2) Statutory meeting is not required to be held after incorporation by the:
 - a) public company
 - b) private company
 - c) Unlimited company
 - d) public company converted from private after one year
- 3) Transfer of share is:
 - a) voluntary passing of ownership
 - b) transmission
 - c) freely transfer
 - d) all of these
- 4) A limited company can be formed by:
 - a) an individual
 - b) an organization
 - c) a group of people
 - d) two companies
- 5) Who can alter the articles of association:
 - a) court of law
 - b) registration authority
 - c) directors of company
 - d) share holders
- 6) Who is liable in unlimited companies:
 - a) every member
 - b) the company
 - c) the guarantor
 - d) none of these
- 7) An official liquidator can be removed by the:
 - a) company
 - b) share holders
 - c) board of director
 - d) court of law
- 8) Which company must hold annual general meeting?
 - a) public
 - b) private
 - c) non profit
 - d) all of these
- 9) A prospectus is issued to:
 - a) sell goods
 - b) raise capital
 - c) get deposits
 - d) both (b) & (c)
- 10) Paid up capital is
 - a) total amount credited on share
 - b) amount company needs for time being
 - c) the amount kept in bank
 - d) none of these



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Company Law

Course Code: BBA-303 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Short questions.

(10x2=20)

- i. Briefly describe how Memorandum can be altered?
- ii. What are the requirements of the Memorandum?
- iii. What do you understand by Articles of Association?
- iv. What is Riba? Why it is prohibited in Islam?
- v. Make distinction briefly between Articles of Association and Memorandum?
- vi. Define unlimited company and association not for profit.
- vii. What is difference between statutory and annual meeting?
- viii. Briefly describe the kinds of Company?
- ix. What is the vision and mission of SECP?
- x. Make distinction between debentures and shares.

Q.3. Long questions.

(3x10=30)

1. Define Company, How it can be registered?
2. Explain share capital in detail.
3. Briefly describe the various modes of winding up of a company?



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Web Engineering

Course Code: BBA-304 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2. Give brief answers to the following questions (Short Questions). Marks: (10*2=20)

1. Define TCP/IP protocol
2. Write down difference between Static HTML and Dynamic HTML.
3. Define DOM and its usage.
4. Differentiate between Static and Dynamic Website.
5. Define Meta.Tag with example.
6. Discuss the importance of session.
7. What is the difference between Servlet and JSP?
8. What is meant by Web Browsers and Web Server?
9. Why we use **INLINE-BLOCK** in CSS?
10. Define TCP/IP Protocol and URL.

Q3. Give detail answers to the following questions (Long Questions) Marks: 30

1. How many ways can we write CSS to style webpage? Which one is better? Please discuss in detail with example and code.
2. Write the HTML code to create following table

3. Write code in HTML Language:

HTML form

First name:

Last name:

E-mail:

Male

Female



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Web Engineering

Course Code: BBA-304 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- Which tag for creating hyperlinks?
A) <a> C) <b1>
B) <h1> D)
- Where in an HTML document is the correct place to refer to an external style sheet?
A) At the end of the document C) In the <body> section
B) In the <head> section
- Which extension is used to save CSS Files
A) .js C) .css
B) .html D) .asp
- HTML is a _____ language.
A) Programming C) Markup
B) Procedural D) All of these
- in this tag which attribute is used?
A) Alt C) Src
B) Width D) Height
- Which of following is not an internet protocol
A) TCP/IP C) STMP
B) HTTP D) DTHL
- An unordered list in HTML document starts with a
A) tag C) <lu> tag.
B) tag D) None
- Output of XML document can be viewed in a
A) Word Processor C) Notepad
B) Web browser D) None of the above
- Which TAG is use to write JAVA SCRIPT program?
A) <Tag> C) <Style>
B) <Script> D) <Undo>
- www is based on which model
A) Local Server
B) Client Server
C) 3-Tier
D) None



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Human Resource Management

Course Code: BBA-305 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers.

(10 x 2 = 20)

- i. What is job specification?
- ii. Differentiate line manager and staff manager.
- iii. What is the objective of Equal Employment Opportunity Legislation?
- iv. Highlight types of orientation.
- v. Differentiate between selection and recruitment.
- vi. What are the sources of external recruiting?
- vii. Why reference checking is important?
- viii. Define apprenticeship.
- ix. Define job rotation.
- x. What are the two basic types of compensation?

Q.3. Give answers of the following questions.

(3x10=30)

- i. What is HRM? How it relates to management process? Illustrate HR manager's responsibilities.
- ii. Compare and contrast different methods of collecting job analysis data with their pros and cons.
- iii. What is career development? Discuss the roles of employees, employee and organization in career development.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Human Resource Management
Course Code: BBA-305 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i. For jobs in a large grocery store, which method of job analysis do you think would be most effective?
(a) Questionnaire (b) Interview
(c) Observation (d) MPDQ (e) None of above
- ii. An organization can get benefits, like dealing with fluctuating product demand and providing skills organization lacks in-house, from:
(a) Job sharing workers (b) Condensed week workers
(c) Permanent workers (d) None of above
- iii. Which of following is not a possible topic for organizational orientation?
(a) Compensation (b) Safety
(c) Physical facilities (d) Employee relations (e) None of above
- iv. Training for highly skilled occupations based on both theory and practical is:
(a) Classroom training (b) Cross training
(c) Apprenticeship (d) All of above
- v. Which of the following is best description of extrinsic reward?
(a) Informal recognition (b) Formal recognition
(c) Social relationships (d) Bath a & b (e) both b & c
- vi. Test conducted to evaluate job related knowledge is _____ test.
(a) Proficiency (b) Interest
(c) Both a & b (d) None of above
- vii. Application without formal advertisement is _____ application.
(a) Formal (b) Unsolicited
(c) Informal (d) Solicited
- viii. Both positive & negative information about job to job holder is:
(a) Clean reviews (b) Job depth
(c) Realistic job previews (d) Responsibilities
- ix. The condition when job is no longer important for an employee is:
(a) Stress (b) Burnout
(c) Uncertainty (d) None of above
- x. Which is an external source of recruiting?
(a) Employee referral (b) Job advertisement
(c) Employee leasing (d) All of above



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Higher Fungi

Course Code: BOT-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2: Briefly answer the following questions. Each question carries two marks.

1. Differentiate between HETEROECIOUS and AUTOECIOUS rust fungi.
2. What is CONIDIAL ONTOGEMMY?
3. Differentiate between TELOMORPH and ANAMORPH.
4. What is meant by PARASEXUALITY? Write its significance.
5. Write down the spore dispersal methods in BASIDIOMYCOTINA.
6. Describe TELIOSPORE germination in smut fungi.
7. Draw and label anatomy of LICHEN thallus.
8. What do you know about the economic importance of RUST FUNGI?
9. Name the different thallus type of LICHENS.
10. Name and draw most significant anatomical features of ASCOMYCETES?

Q3: Answer the following question.

1. Describe the mode of reproduction in ASCOMYCETES. (05 Marks)
2. Write down occurrence and importance of TELIOMYCETES as PHYTOPATHOLOGICAL FUNGI. (05 Marks)
3. Put down commercial uses of mushrooms. (05 Marks)
4. Briefly explain morphology, anatomy and development of BASIDIOCARP. (05 Marks)
5. What is CENTRA? Describe its importance in various ASCOMYCETES GENERA. (10 Marks)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Higher Fungi

Course Code: BOT-301 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. All members of the kingdom fungi are.....
 - a. Eukaryotic and heterotrophic
 - b. Multicellular and heterotrophic
 - c. Eukaryotic and autotrophic
 - d. Either mushroom and yeast
2. The sexual fruiting body of *Penicillium* is called.....
 - a. Cleistothecium
 - b. Perithecium
 - c. Apothecium
 - d. Stroma
3. The Agaricomycotina contain some 20,000 species, and about 98% of these are in the class.....
 - a. Agaricomycetes
 - b. Basidiomycetes
 - c. Deuteromycetes
 - d. None of these
4. A lichen consists of a simple photosynthesizing organism, usually green alga or _____.
 - a. Bacteria
 - b. Cyanobacteria
 - c. Green Algae
 - d. Both a & c
5. The most common asexual methods of reproduction in ascomycetes are:
 - a. Conidia
 - b. Conidia & chlamydospores
 - c. Conidia, chlamydospores & budding
 - d. All
6. "Botrytis blight" is a disease cause by fungal group _____.
 - a. Ascomycetes
 - b. Basidiomycetes
 - c. Deuteromycetes
 - d. Oomycetes
7. One of the distinctive anatomical structures of basidiomycetes is;
 - a. Clamp connections
 - b. Conidiophore
 - c. Vesicles
 - d. Metulae
8. Which fungi grow as budding single cell?
 - a. Molds
 - b. Yeast
 - c. Morels
 - d. Bracket fungi
9. The.....diseases are generally characterized by black, dusty masses of spores.
 - a. Candidiasis
 - b. Rust
 - c. Smut
 - d. None of these
10. Example of non-gilled fungus is;
 - A. *Ganoderma*
 - b. *Russula*
 - c. *Alternaria*
 - d. a & c



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Microbial and Molecular Genetics
Course Code: BOT-303 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Which of these describes a Holliday junction?

- a. A section of DNA where base pairing is not exact.
- b. A strand of DNA containing genetic material from two different chromosomes
- c. An interaction of two strands of DNA from homologous chromosomes
- d. A three stranded DNA structure where single stranded DNA has invaded a double helix.

2. Which of the statements below is false?

- a. The genetic code is overlapping
- b. The genetic code is universal
- c. Degenerate codons specify the same amino acids
- d. The genetic code is triplet

3. Transfer RNA bind during translation by the

- a. Codon
- b. Intron
- c. Anticodon
- d. Template

4. When genes are passed to other microbes of their same generation, it leads to

- a. Transversion
- b. Recombination
- c. Vertical gene transfer
- d. Lateral gene transfer

5. Identification of the sequence of genes in a chromosome is known as

- a. Gene mapping
- b. Karyotype
- c. Gene coding
- d. Gene linkage

P.T.O.

6. Codon can be read on
- mRNA
 - tRNA
 - rRNA
 - DNA
7. Plasmids are suitable vectors for gene cloning because
- these can shuttle between prokaryotic and eukaryotic cells
 - these are small circular DNA molecules with their own replication origin site
 - these are small circular DNA molecules, which can integrate with host chromosomal DNA
 - these often carry antibiotic resistance genes
8. F^+ bacteria can construct which of the following that allow the bacteria to join together to transfer genes?
- gap junctions
 - pili
 - connecting channels
 - Plasmodesmata
 - Porins
9. A ____ mutation originates during meiosis while a ____ mutation originates during mitosis
- germinal, somatic
 - germinal, spontaneous
 - somatic, germinal
 - spontaneous, point
10. Transcription is initiated when RNA polymerase binds to
- a promotor
 - an initiator
 - a transcriptor
 - a codon



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Microbial and Molecular Genetics

Course Code: BOT-303 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Differentiate between:

(10x2=20)

- a. HETEROCHROMATIN and EUCHROMATIN
- b. EXOGENOTE and ENDOGENOTE
- c. MISSENSE and SAME SENSE mutation.
- d. CONDITIONAL LETHAL and BIOCHEMICAL mutations
- e. LYTIC and LYSOGENIC life cycle of phages
- f. EPISOME and PLASMID
- g. STRUCTURAL GENES and REGULATORY GENES
- h. ABORTIVE TRANSDUCTION and SPECIALIZED TRANSDUCTION
- i. TOPOISOMERASES and LIGASES
- j. BACTERIOPHAGE and PROPHAGE

Q.3. Write brief answers of the following questions.

(3x10=30)

1. Write about the mechanism involved in POST REPLICATION REPAIR of DNA.
2. Explain briefly the role of HISTONE protein in packaging of DNA.
3. Write about the phenomenon of CATABOLITE REPRESSION with reference to *lac* OPERON.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Evolutionary Trends in Tracheophytes

MAX. TIME: 15 Min.

Course Code: BOT-305 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- 1) The plant having xylem and phloem originated in the
a. Devonian b. Ordovician c. Silurian d. Cambrian
- 2) Which of the following is called **Living Fossil**?
a. *Ephedra* b. *Pinus* c. *Cycas* d. *Ginkgo*
- 3) The **sporangia** in early Vascular Land Plants are;
a. Lateral b. Terminal c. Axillary d. Both a & b
- 4) *Cooksonia* belongs to group;
a. Rhyniophyta b. Zosterophyllophyta c. Psilophyta d. Lycophyta
- 5) First **true seeds** appeared in
a. Seed Ferns b. Progymnosperms c. Gymnosperms d. Angiosperms
- 6) Catapult mechanism of dehiscence was present in;
a. Eusporangia b. Leptosprangia c. Both a&b d. None
- 7) Earliest known **Lycopsids** are included in;
a. Drepanophycales b. Ophioglosales c. Gnetales
d. *Ranales*
- 8) Stems mostly equipped with ridges and furrows are characteristic for;
a. Ferns b. *Dioon* c. Sphenopsids d. *Abies*
- 9) **Trilete Spores** are those having;
a. Triradiate germinal suture b. Smooth exine c. Large apertures
d. Pores
- 10) **Maiden hair fern** is the other name for;
a. *Selaginella* b. *Psilotum* c. *Adiantum* d. None of them



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Evolutionary Trends in Tracheophytes

Course Code: BOT-305 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(10 x 2 = 20)

- i. Define Tracheophytes.
- ii. Give examples of **LIGULATE LYCOPHYTES**.
- iii. Define **HETEROSPORY**. What is its importance?
- iv. Enlist any four synthetic characters of **PSILOPHYTA**.
- v. How do **TRILETE SPORES** differ from **MONOLETE** and **ALETE SPORES**?
- vi. Enlist 5 general features of **CYCADALES**.
- vii. What is the importance of “**Rhynie Chert Plants**”?
- viii. Highlight any **four** synthetic characters of **Gymnosperms**.
- ix. Differentiate between **Microphylls** and **Megaphylls**.
- x. Differentiate between **Protosteles** and **Siphonosteles**.

Q.3. Questions with brief answers.

(3 x 10 = 30)

1. Highlight the Synthetic Characters of **PSEUDOBORNIALES** and **PLEUROMIALES** along with their **EVOLUTIONARY IMPLICATIONS**. Give examples. (10 marks).
2. How **ANGIOSPERMS** were evolved? Justify your answer with different theories. (10 marks)
3. Compare and Contrast **CONIFERALES** and **GNETALES**. (10 marks)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Environmental Biology

Course Code: BOT-307 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Write short notes on the following.

(5x4=20)

- (i) Importance of Forests and Deforestation
- (ii) Adverse effects of Air Pollution on plant growth
- (iii) Sources of Water Pollution
- (iv) The Fallout Problem
- (v) Impacts of Thermal Pollution

Q 3. What do you understand by Environmental Crisis? Briefly discuss adverse effects of 10

- (a) Global Warming
- (b) Ozone Hole
- (c) Acid Rain

Q 4. Define and classify pesticides. Give an account of their characteristics and environmental problems associated with their extensive use. 10

Q 5. (a) What is Smog, its causes and types? Explain mechanism of its formation. Give an account Smog related respiratory diseases and its general adverse effects 10



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Environmental Biology
Course Code: BOT-307 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (i) Organic wastes (as animal wastes and plant debris) in water can
- (a) Deplete dissolved Oxygen of Water (b) Cause Cancer
(c) Cause Excessive Growth of Algae (d) Reduce Photosynthesis
- (ii) Pollutant gas that reacts in the presence of sunlight to produce Ozone is
- (a) SO₂ (b) NH₃ (c) NO₂ (d) Cl₂
- (iii) Major contribution in global warming is that of
- (a) CFC (b) Methane (c) CO₂ (d) N₂O
- (iv) Coal, Oil and Gas are produced as a result of
- (a) Photosynthetic activity of past millions of years (b) Abiotic Activity
(c) Current Photosynthetic Activity (d) None of a, b or c
- (v) A species abundant in its natural range but with declining population is said to be
- (a) Extinct species (b) Threatened species (c) Endangered species (d) Indicator Species
- (vi) Mark out dominant component of Photochemical Smog
- (a) O₃ (b) PAN (c) SO₂ (d) NO₂
- (vii) Symptoms of Fluoride injury appears on leaves of sensitive plant species as
- (a) Necrosis (b) Chlorosis (c) Bleaching (d) Silvering & Bronzing
- (viii) Higher the ICV, higher is the radio sensitivity in
- (a) Higher animals (b) Lower plants (c) Insects (d) Higher plants
- (ix) Which one is a non-renewable resource?
- (a) Wild life (b) Forests (c) Natural Gas (d) Water
- (x) Radiation that can travel a distance of only a few centimeters in the air is
- (a) Alpha Particles (b) Beta Particles (c) Gamma Rays (d) X-Rays



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: News Reporting & Writing

Course Code: BSCS-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q. No. 2 Answer the following short questions

(5 x 4 = 20)

سوال نمبر ۲۔ مندرجہ ذیل سوالات کے مختصر جوابات دیں۔

i. What is news?

الف خبر کیا ہے؟

ii. Write down any two qualities of a crime reporter.

ب کرائم رپورٹر کی کوئی سی دو خصوصیات بیان کریں۔

iii. What is the importance of 5Ws and 1H in a news?

ج خبر میں 5Ws اور 1H کی اہمیت بیان کریں۔

iv. What is meant by "Follow up"?

د فالو اپ سے کیا مراد ہے؟

v. What is difference between Date line and Head line?

ہ ڈیٹ لائن اور ہیڈ لائن میں فرق واضح کریں۔

Q. No. 3 Give Answers in Detail.

(15 x 2=30)

مندرجہ ذیل سوالات کے مفصل جوابات دیں۔

i. Define Beat. Discuss political and sports beats in detail.

الف بیٹ کی تعریف کریں، سیاسی اور کھیلوں کی بیٹ تفصیل سے بیان کریں۔

ii. While selecting a news, what features does a reporter consider?

ب ایک رپورٹر کن عوامل کو ذہن میں رکھ کر خبر کا انتخاب کرتا ہے؟



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: News Reporting & Writing
Course Code: BSCS-301 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i. _____ is the oldest news agency in the world.
a) AFP b) Reuters c) AP d) UPI
- ii. Most national and international news comes into newsroom from the _____.
a) Reporters b) Bureau Chief c) AP d) Monitoring Desk
- iii. APNS stands for:
a) All Pakistan News Syndicate
b) All Pakistan Newspapers Society
c) All Pakistan Newspapers Syndicate
d) None of these
- iv. The reporter must be:
a) Neutral b) Alert c) Both A & B d) Partial
- v. A story appearing with the name of the reporter is:
a) By Line b) Print Line c) Date Line
- vi. The news which appears in newspaper two or three days before an important event is called:
a) Curtain raiser (b) Back grounder c) Follow up
- vii. The first newspaper of the subcontinent was:
a) Kohinoor b) Hickey Gazette c) Comrade
- viii. A brief introduction of a photograph is:
a) Embargo b) Caption c) Credit line
- ix. The first editor of Dawn was?
a) Desmond Young b) Altaf Hussain c) Pothan Joseph
- x. Zamidar was launched by?
a) Maulana Zafar Ali Khan
b) Maulvi Serajuddin
c) Munshi Mahboob Alam



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Broadcast Journalism

Course Code: BSCS-302 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

(1x10=10)

سوال نمبر 1: درست جواب پر نشان لگائیں۔

1. DSL stands for

a) Digital Satellite Line

b) Digital Subscriber Line

c) Dial up Standard Line

d) None of these

1۔ ڈی ایس ایل کس کا مخفف ہے؟

ڈائل اپ سٹینڈرڈ لائن

ان میں سے کوئی نہیں

ڈیجیٹل سیٹلائٹ لائن

ڈیجیٹل سبسکرائبر لائن

2. In Pakistan, television color transmission started in

a) 1974

b) 1975

c) 1976

d) 1977

2 پاکستان میں ٹیلی ویژن کی رنگین نشریات کا آغاز کس سن میں ہوا؟

1974 1976

1975 1977

3. SOT is also known as

a) Sound bites

b) Sound on tape

c) both a & b

d) Sound play

3۔ کو بھی کہتے ہیں سات

ساؤنڈ بائٹس اے اور بی دونوں آپشن

ساؤنڈ ان ٹیپ ساؤنڈ پلے

4. Budgeting of TV program is an element of

a) Proposal

b) Split page

c) Concept paper

d) None of above

4۔ ٹیلی ویژن پروگرام کا بجٹ کا حصہ ہوتا ہے۔

پراپوزل کانسپٹ پیپر

سپلٹ پیج ان میں سے کوئی آپشن نہیں

5. Signature tune is a significant part of

a) TV news bulletin

b) Radio news bulletin

c) both a & b

d) TV scripting

5۔ دھن کا اہم حصہ ہے۔ دستخطی

ٹی وی خبرنامہ اے اور بی دونوں آپشن

ریڈیو خبرنامہ ٹی وی سکرپٹ

P.T.O.

6. Every page of news script must be identified, these identifications are called

- a) Slugs
b) Teases
c) Localization
d) None of these

6. خبر کے سکرپٹ کی ہر صفحہ کی شناخت لازمی ہوتی ہے، ان عنوانات کو کہتے ہیں۔

سلگز لوکلائزیشن

ٹیزز ان میں سے کوئی آپشن نہیں

7. Radio documentaries are also called

- a) radio features
b) doco drama
c) radio dramas
d) radio interviews

7. ریڈیو کی دستاویزی فلموں کو بھی کہا جاتا ہے۔

ریڈیو فیچر ریڈیو ڈرامہ

ڈوکو ڈرامہ ریڈیو انٹرویو

8. FM stands for

- a) Frequency Modulation
b) Frequency Measuring
c) Frequency Metering
d) None of these

8. ایف ایم کس کا مخفف ہے؟

فریکوئنسی موڈولیشن فریکوئنسی میٹرنگ

فریکوئنسی میٹرنگ ان میں سے کوئی آپشن نہیں

9. In television programs, we mostly use

- a) Gun microphone
b) Cordless microphone
c) Lapel microphone
d) None of these

9. ٹی وی پروگراموں میں اہم زیادہ تر کا استعمال کرتے ہیں۔

گن مائیکروفون لیپل مائیکروفون

کارڈلیس مائیکروفون ان میں سے کوئی آپشن نہیں

10. Pakistani film industry started declining in

- a) 1975
b) 1976
c) 1977
d) 1978

10. پاکستانی فلم انڈسٹری کا تنزل سن میں شروع ہوا۔

1978 1976 1977 1975



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Online Journalism

MAX. TIME: 15 Min.

Course Code: BSCS-303 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

i. A limitation of the Internet is the:

انٹرنیٹ کی ایک خامی _____ ہے۔ .i

- (a) Inaccuracy (b) Anonymity
(c) Interactivity (d) Beyond geography

ii. Which of the following represents the primary mechanism for the interactivity on the Web?

ویب انٹرایکٹیوٹی _____ پر منحصر ہوتی ہے۔ .ii

- (a) Bullets (b) Multimedia
(c) Online Survey (d) Hyperlinks

iii. Online journalism is journalism more or less produced for the _____.

آن لائن جرنلزم میں صحافت _____ کے لئے کی جاتی ہے۔ .iii

- (a) Worldwide web (b) Hyperlinks
(c) Blogs (d) Publication

iv. Which of the following is the plus point of Online journalism when judged against print journalism?

آن لائن صحافت کی کونسی خصوصیت اسے پرنٹ جرنلزم سے ممتاز کرتی ہے؟ .iv

- (a) Immediate (b) Precise
(c) Accurate (d) Reliable

v. The page that your browser is set to use when it starts up is termed as _____.

کمپیوٹر آن کرنے پر جو صفحہ خود بخود کھلتا ہے اسے _____ کہتے ہیں۔ .v

- (a) Blog (b) Home page
(c) Wiki (d) Portal

vi. All of the following are the sources where the internet provides information except:

انٹرنیٹ درج ذیل تمام ذرائع کے لئے معلومات فراہم کرتا ہے ماسوائے _____ .vi

- (a) Websites (b) Emails
(c) Instant messengers (d) Classified ads

vii. Search engines and _____ has made it much easier than ever before to find experts' comments on issues.

سرچ انجن اور _____ نے ماہرین کی رائے کو جاننا بہت آسان کر دیا ہے۔ .vii

- (a) Popup ads (b) Online newspapers
(c) Online directories (d) Hacking

P.T.O.

viii. Which of the following provides 'immediacy of content' and has the technological ability to instantly report an unfolded news event?

.viii مندرجہ ذیل میں سے کون سا ذریعہ تیز ترین ہے اور خبر کی فوری ترسیل کرتا ہے؟

- (a) TV (b) Radio
(c) Mobile (d) Internet

ix. The speed and efficiency provided by the internet can play fast but it affects the:

.ix انٹرنیٹ کی تیز رفتار معلومات کی ----- پر اثر انداز ہو سکتی ہے۔

- (a) Access (b) Credibility
(c) Advertisement (d) Graphics

x. A list of links to other blogs refers to:

.x دوسرے بلاگ تک رسائی کے لئے جو لسٹ ہوتی ہے اسے ----- کہتے ہیں۔

- (a) Blog roll (b) RSS feed
(c) Blogs (d) Blog search engines



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Online Journalism

Course Code: BSCS-303 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short and comprehensive answers of the following questions. (5x4=20)

i. Enlist the limitations of internet.

.i انٹرنیٹ کی خامیاں بیان کریں۔

ii. What is Time and Date Stamp in the blog?

.ii بلاگ میں ٹائم اینڈ ڈیٹ سٹیمپ سے کیا مراد ہے؟

iii. What is meant by Cyber Bulling? Explain in your words.

.iii سائبر بلنگ سے کیا مراد ہے؟ اپنے الفاظ میں بیان کریں۔

iv. Enlist the qualities of a good website.

.iv ایک اچھی ویب سائٹ کی خصوصیات تحریر کریں۔

v. How can you make navigation fast and consistent?

.v نیوی گییشن کو تیز اور موثر کیسے بنایا جاسکتا ہے؟

Q.3. Give detailed answers of the following questions.

(3x10=30)

i. Explain the ethical and legal challenges that are faced by the online journalists.

.i ان اخلاقی اور قانونی چیلنجز کا احاطہ کیجئے جو ایک آن لائن جرنلسٹ کو درپیش ہیں۔

ii. Immediacy of the News has given an edge to the online journalism over the print journalism. Discuss.

.ii خبروں کی فوری ترسیل کی وجہ سے آن لائن جرنلزم کو پرنٹ جرنلزم پر فوقیت حاصل ہے۔ بحث کیجئے۔

iii. Explain and analyze the positive and negative features of Internet. Do you think that it has more plus points than the negative ones? Give logical arguments to support your answer.

.iii انٹرنیٹ کی مثبت اور منفی خصوصیات کا جائزہ لیں۔ کیا آپ سمجھتے ہیں کہ انٹرنیٹ منفی سے زیادہ مثبت خصوصیات کا حامل ہے؟ مدلل جواب دیجئے۔



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Theories of Communication-I

Course Code: BSCS-305 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(5x4=20)

1. What is meant by theory and how it is interrelated to research?
2. Define the term "Selective Exposure".
3. What are media centered theories?
4. Describe briefly the magic bullet theory.
5. Differentiate between perception and retention.

Q.3. Questions with brief answers.

(3x10=30)

1. What is your understanding about Gate keeping theory?
2. What is the importance of message in communication? Describe its attributes.
3. Describe the salient features of social learning theory?



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Theories of Communication-I
Course Code: BSCS-305 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. are the nets we cast to understand social world.
 - a. Models
 - b. Mass Media
 - c. Paradigm
 - d. Theories
2. The ----- theory suggests the government control over press
 - a. Authoritarian Theory
 - b. Libertarian Theory
 - c. Social Responsibility Theory
 - d. Media Development Theory
3. Communication with others is known as
 - a. Inter personal Communication
 - b. Intra personal Communication
 - c. Extra personal Communication
 - d. None of above
4. .. theory allows free press without any censorship but at the same time the content of the press should be discussed in public panel and media should accept any obligation from public interference or professional self-regulations or both.
 - a. Soviet Communist
 - b. Totalitarian
 - c. Social Responsibility
 - d. Libertarian
5. is the major models on which scholars of a particular discipline have consensus on a certain time
 - a. Paradigm
 - b. Theory
 - c. Hypothesis
 - d. None of above

P.T.O.

6. The ----- theory suggests the opinion formation process.
- Agenda Setting Theory
 - Cultivation Theory
 - Spiral of Silence Theory
 - Media Development Theory
7. depends on social norms and shapes the mass media institutions-based on social philosophy
- Normative Theory
 - Operational Theory
 - Everyday Theory
 - Cultural Theory
8. Selective Retention assumes that
- People remember best messages related to their attitudes and beliefs
 - People remember already existing messages near to their attitudes and beliefs
 - People retention of messages level is very poor
 - None of above
9. The two-step flow of communication hypothesis was first introduced by
- Leon Festinger
 - Albert Bandura
 - Paul Lazarsfeld
 - None of above
10. The Magic Bullet Theory of mass communication is known as:
- Cultivation
 - Limited effect theory
 - Hypodermic needle
 - None of above



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Business Management

Course Code: COMM-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q. 2 Give Short answers of the following questions:

(10×2=20)

- a. What is the difference between efficiency and effectiveness?
- b. Define conceptual skills of a manager.
- c. What is meant by scalar chain?
- d. What do you mean by MBO?
- e. Differentiate between authority and power.
- f. Define leadership.
- g. Explain rational decision making.
- h. What is scientific management theory?
- i. What is SWOT analysis?
- j. Define organizational design.

Q.3 Define Culture. Write a detailed note on dimensions of culture.

(10)

Q.4 Write a note on Maslow's hierarchy of needs theory.

(10)

Q.5 Discuss importance of management in detail.

(10)



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Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Business Management

Course Code: COMM-301 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Choice between two alternatives is called
 - a. Problem
 - b. Decision
 - c. Intuition
 - d. All of these
2. Working with and through people is called:
 - a. Leading
 - b. Planning
 - c. Controlling
 - d. Organizing
3. The breakdown of jobs into repetitive tasks is known as:
 - a. Division of labor
 - b. Division of money
 - c. Both of above
 - d. None of these
4. Decision style characterized by a person's preference for using external data and processing this information through rational, logical thinking is called
 - a. Linear thinking style
 - b. Non linear thinking style
 - c. Non Rational thinking style
 - d. Cooperative thinking style
5. The goals that an organization actually pursues are known as:
 - a. Real goals
 - b. Stated goals
 - c. Time limited goals
 - d. None of these
6. The plans which are framed beyond 3 years are:
 - a. Short term plans
 - b. Medium term plans
 - c. Long term plans
 - d. All of these
7. A group of people who do not work together physically and are connected through internet are called
 - a. Problem solving team
 - b. Cross functional team
 - c. Self managed team
 - d. Virtual team
8. The view of management in which external factors are held responsible for company's success and failure:
 - a. Symbolic view
 - b. Controversial view
 - c. Cultural view
 - d. Omnipotent view
9. The ways in which people in an organization are different from and similar to one another:
 - a. Workplace conflict
 - b. Workforce similarity
 - c. Workforce diversity
 - d. All of these
10. An organizational design that's not adaptive and flexible.
 - a. Organic organization
 - b. Mechanistic organization
 - c. Rigid organization
 - d. None of these



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Entrepreneurship (Commerce)
Course Code: COMM-302 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(10 x 2 = 20)

1. IPO vs Secondary offering
2. Sweat equity vs financial equity
3. Management prowess
4. Young, part time and minority entrepreneur
5. Financial and liquidity objectives of business
6. Guerilla and viral marketing
7. Creativity process
8. Proforma financial statement vs historical statement
9. Economic and social forces that help in idea generation of a business
10. Cost leadership and differentiation strategies

Q.3. Questions with brief answers.

(3 x 10 = 30)

- i. State the content of successful business plan?
- ii. Identify and explain the three ways of identifying opportunity?
- iii. Explain strategic management process?



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Entrepreneurship (Commerce)
Course Code: COMM-302 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Creativity process may be better explained by the sequence:
 - a) Incubation, insight and evaluation
 - b) Evaluation, insight and incubation
 - c) Incubation, evaluation and insight
 - d) Evaluation, incubation and insight
2. Statement of cash flow, covers all transactions:
 - a) That are on credit only
 - b) That are in cash only
 - c) Both cash and credit
 - d) Could include any of them
3. Cash flow statement does not include:
 - a) Operating activities
 - b) Financing activities
 - c) Start up activities
 - d) Investment activities
4. ----- tells the spending in business, up till the business starts earning profits
 - a) Preliminary expenses
 - b) Underwriters' commission
 - c) Agent fee
 - d) Burn rate
5. Reducing possibility of external debt through cost saving is often termed as:
 - a) Bootstrapping
 - b) Cost minimization
 - c) Personal financing
 - d) Loan from friends and family
6. An already established business firm that invests in entrepreneurial venture, could best be termed as:
 - a. Business angels
 - b. Venture capital
 - c. Friends equity
 - d. Sweat equity
7. Concept test does not deal with:
 - a. Description of product and services
 - b. Market positioning
 - c. Description of management team
 - d. Competitors market
8. Segmenting market on the basis of spending habits, is:
 - a. Demographical segmentation
 - b. Psychographic segmentation
 - c. Area segmentation
 - d. Income based segmentation
9. An actor and a person who managed large project were termed as the entrepreneur in the
 - a. Earliest period
 - b. Middle ages
 - c. 17th century
 - d. 19th and 20th century
10. Elevator presentation is planned to attract:
 - a) Customers
 - b) Partners
 - c) Potential investors
 - d) All of them



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Interpersonal Skills

Course Code: COMM-303 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers to the following questions.

(5x4=20)

- i. What are the Fears associated with self-disclosure?
- ii. Differentiate Eustress and Distress.
- iii. What are the Eight Elements of International Protocol for effective Global Negotiation?
- iv. What are three types of Listening? Identify the Best type of Listening.
- v. What are the Four methods to get Self-Awareness?

Q.3. Answers all the following questions briefly.

(3x10=30)

- i. What is CONFLICT and what are Conflict Management Strategies?
- ii. What are the potential limitations of Teams? Write down team developmental stages.
- iii. Our personal and professional relationships can be greatly improved through understanding ourselves and appropriate self-disclosure with others. Support this statement with reference to JOHARI WINDOW.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Interpersonal Skills

MAX. TIME: 15 Min.

Course Code: COMM-303 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Teamwork needs

- a) putting off b) goal c) co-ordination d) achievement

2. Paralanguage includes

- a) pitch b) colours c) space d) perceptions

3. _____ is needed to begin a meeting

- a) Minutes b) Goals c) Plan d) Agenda

4. The ability to keep yourself under observation is called

- a) Stress management b) Achievement c) Self-monitoring
d) Goal setting

5. Role playing in group means

- a) Combined effort b) fighting with one another c) unique
d) working on given task

6. Integrative Bargaining includes:

- a) fixed pattern b) lesser time c) open communication d) short-termed relationship

7. Third Party Negotiation does not include:

- a) arbitration b) mediator c) consultant d) law-suit

8. Negotiation ends up on:

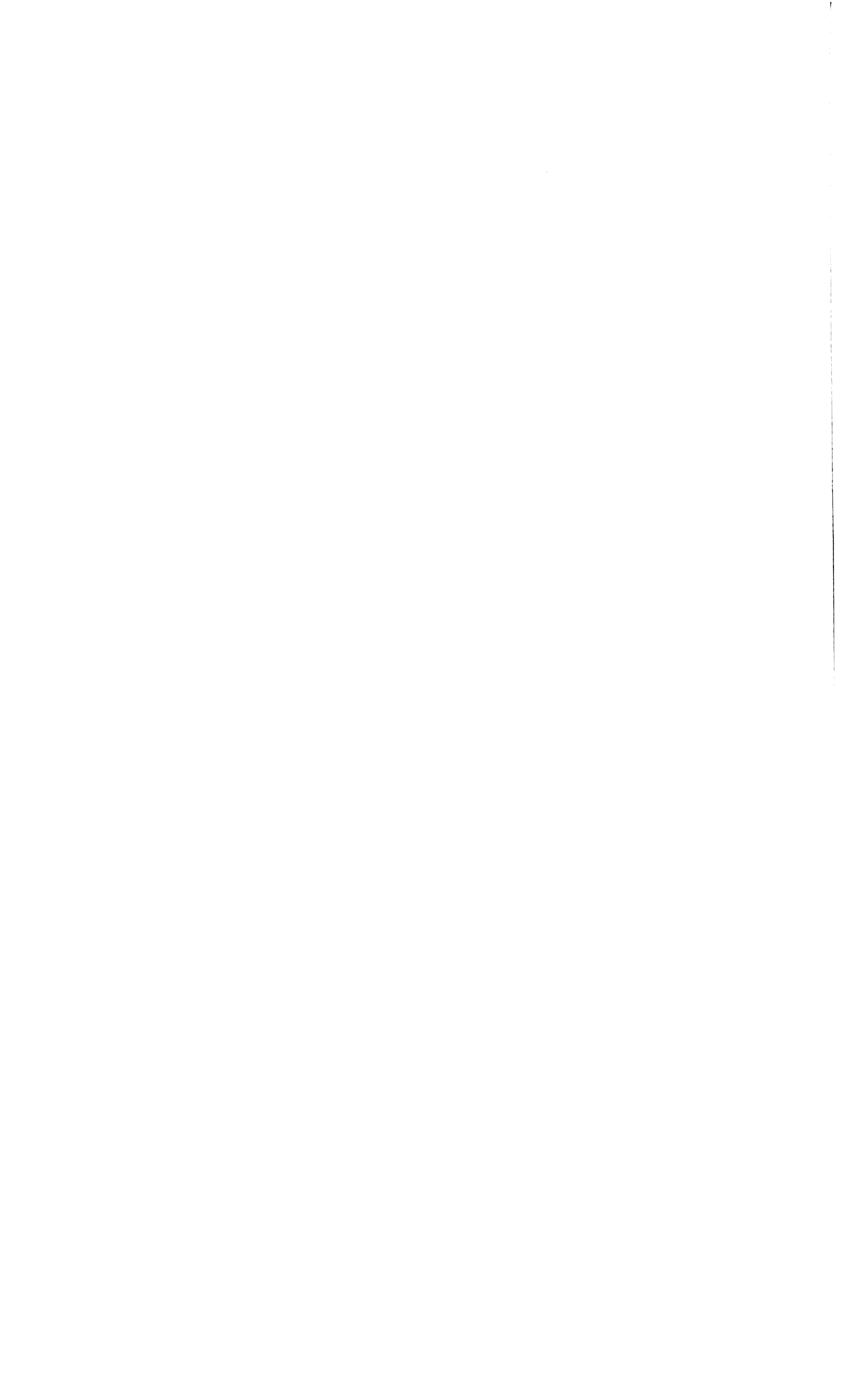
- a) win-lose b) lose-lose c) win-win d) Both a and c

9. 'Avoidance' is a strategy to manage:

- a) stress b) team issues c) lack of resources d) conflict

10. 'Filtering' in communication means:

- a) sugar-coating of message b) purify your content c) avoiding messages d) to discard the old messages





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Principles of Marketing

Course Code: COMM-304 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers to the following questions.

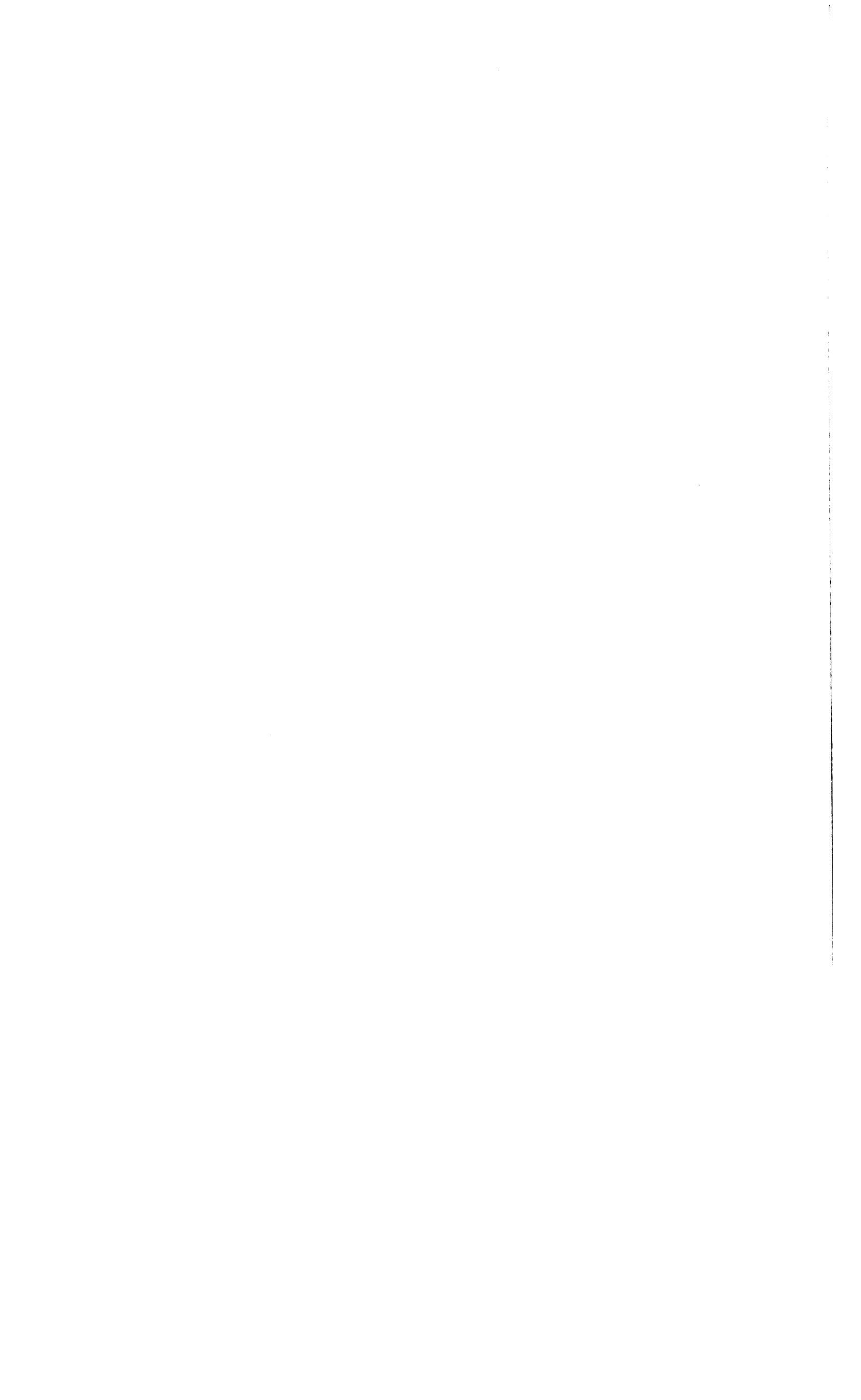
(10x2=20)

1. State difference between production concept and product concept?
2. Define marketing information system?
3. Briefly explain "Publics" as an element of micro environment?
4. Explain "Franchising" as a distribution technique?
5. Define product development?
6. Briefly describe stages of product life cycle?
7. What is difference between goods and services?
8. Define Maslow's hierarchy of needs theory?
9. What is the difference "Differentiation and Positioning"?
10. Define price skimming strategy?

Q.3. Answers all the following questions briefly.

(3x10=30)

1. Discuss steps recommended for finding needs and wants of the consumers in marketing process?
2. Define marketing mix? Discuss the elements of marketing mix?
3. What are different options available with marketers for deciding "Product Mix Pricing" strategy?





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Principles of Marketing
Course Code: COMM-304 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Which of the following is not a type of marketing concept:
 - A. Production concept
 - B. Societal marketing concept
 - C. Selling concept
 - D. Supplier concept

2. Marketing is a process which aims at _____?
 - A. Production
 - B. Satisfaction of customer needs
 - C. Profit making
 - D. Selling products

3. When Price and other features of product is not considered, no contemplation of substitutes or alternatives and is purchased infrequently is called:
 - A. Shopping
 - B. Unsought
 - C. Convenience
 - D. Specialty

4. The use of price points for reference to different levels of quality for a company related products is typical of which product-mix pricing strategy:
 - A. Optional product pricing
 - B. Captive product pricing
 - C. By-product pricing
 - D. Product-line pricing

5. Today, marketing must be understood in a new sense as ____
 - A. Get there first with the most
 - B. Satisfying customer needs
 - C. Management of youth demands
 - D. To sell products

6. Choose an appropriate definition of demand?
 - A. Customer needs
 - B. Needs backed by buying power
 - C. Needs directed to the product
 - D. Basic human requirements

7. Sales is a process which aims at _____?
 - A. Production
 - B. Satisfaction of customer needs
 - C. Profit making
 - D. Selling products

8. Price skimming is a pricing strategy in which marketer sets a relatively ____ initial price for a product or service at first, then ____ the price over time.
 - A. High, lower
 - B. Lower, higher
 - C. Lower, lower
 - D. Higher, higher

9. Trade Promotion Tools include all the following except.
 - A. Contests
 - B. Trade Shows
 - C. exhibits
 - D. Sampling

10. Taxes levied against goods imported from another country are called.
 - A. Tariff
 - B. Boycott
 - C. Standards
 - D. Exchange Permits



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Research Methods in Business
Course Code: COMM-305 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. The quantitative research is best described by-----
 - a. The collection of nonnumerical data
 - b. An attempt to confirm the researcher's hypotheses
 - c. Research that is exploratory
 - d. Research that attempts to generate a new theory
2. A literature review requires
 - a. Planning
 - b. Good & clear writing
 - c. A lot of rewriting
 - d. All of the above
3. Conducting surveys is the most common method of generating.....
 - a. Primary data
 - b. Secondary data
 - c. Qualitative data
 - d. None of the above
4. Exploratory research addresses one of the following types of question.
 - a. If
 - b. How
 - c. Why
 - d. What
5. The interview in which questions are already prepared is called
 - a. Telephonic interview
 - b. Personal interview
 - c. Unstructured interview
 - d. Structured interview
6. A developmental research design that examines age differences at only one point in time is called the method.
 - a. Cross-sectional
 - b. Longitudinal
 - c. Single-case
 - d. Sequential
7. The the study is always adopted where only a little knowledge or information about a problem is available.
 - a. Exploratory
 - b. Descriptive
 - c. Causal
 - d. Experimental
8. A hypothesis is a about the predicted relationship among events or variables.
 - a. Statement
 - b. Conclusion
 - c. Orientation
 - d. Study
9. Which one of the following is NOT a measure of central tendency?
 - a. Mean
 - b. Median
 - c. Mode
 - d. Range
10. A variable that is presumed to cause a change in another variable is called as
 - a. Categorical variable
 - b. Dependent variable
 - c. Independent variable
 - d. Intervening variable



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Research Methods in Business

Course Code: COMM-305 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2. Give short answers to the following questions. Be brief in providing answers. (10×2=20)

1. Distinguish between directional and nondirectional hypothesis?
2. What do you mean by primary data?
3. Why is basic research conducted?
4. What is meant by cluster sampling?
5. What is a research design?
6. What is an operational definition?
7. What is a literature review?
8. What is moderating variable?
9. Give an example of data analysis software?
10. What do you mean by a research problem?

LONG QUESTIONS

- Q3. What do you mean by Observation? What are the different types of observation? (10)**
- Q4. What is Theoretical Framework? What are the components of a theoretical framework? (10)**
- Q5. What are Secondary Data? Discuss the sources of secondary data? (10)**



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Physical Chemistry

Course Code: CHEM-301 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (1) Electrolytic conduction differs from metallic conduction from the fact that in the former.
- (a) The resistance increases with the increasing temperature.
(b) The resistance decreases with increasing temperature.
(c) The resistance remains constant with increasing temperature.
(d) The resistance is independent of the length of the conductor.
- (2) Identify the correct statement regarding fuel cells.
- (a) They are more efficient. (b) They are free from pollution.
(c) They run till the reactants are active. (d) All of these.
- (3) A cell reaction is spontaneous if the cell potential is
- (a) Zero (b) Negative
(c) Positive (d) Infinite
- (4) In which of the following the free energy of a chemical reaction is directly converted to electricity.
- (a) Lead storage battery (b) Fuel cell
(c) Concentration cell (d) Lochlanche cell
- (5) When the temperature is raised, the rate of the reaction increases because
- (a) Lowering of activation energy (b) Increase in number of collisions
(c) Decrease in number of active molecules (d) Decrease in number of collisions
- (6) The reaction, $2O_2 \longrightarrow 3O_3$ proceeds in two steps. The rate law for the overall reaction
- (a) $r = k [O_3][O_2]$ (b) $r = k [O_3]^2$
(c) $r = k [O_3]^2[O_2]^{-1}$ (d) $r = k [O_3] [O_2]^2$
(d)
- (7) The reaction, $2H_2O_2 \longrightarrow 2H_2O + O_2$ is a
- (a) Zero order reaction (b) 1st order reaction
(c) 2nd order reaction (d) 3rd order reaction
- (8) Laplacian operator is a
- (a) Integral operator (b) additional operator
(c) Subtraction operator (d) differential operator
- (9) The operator " ∇ " is
- (a) Linear operator (b) diagonal operator
(c) Not linear (d) straight line operator
- (10) Ψ is symbol used for
- (a) Velocity of the wave (b) amplitude of the wave
(c) Density of the wave (d) none of the above



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Physical Chemistry

Course Code: CHEM-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2- Attempt all the short questions ($2 \times 10 = 20$)

- Explain Arrhenius Factor.
- Discuss the effect of temperature and concentration on equivalent conductance.
- Define orthogonality and normalization of wave function?
- Prove that $I = \mu r^2$
- Justify: the reaction in the solution phase is faster than those in the solid phase?
- What are Eigen function and Eigen values? Give one example of each.
- Give various steps in thermal decomposition of Acetaldehyde and also indicate the rate determining step.
- Briefly explain Ostwald's Dilution Law?
- What is tunnel effect? Give an example?
- Why Debye-Huckel law is valid only for dilute solution?

Section 2

Attempt all questions

Q.3- (a) Derive a rate expression for 3rd order reaction, when initial concentration of two reactants is same but that of 3rd one is different. (7)

(b) What is parallel reaction? Give its types? (3)

Q.4- (a) Calculate vibrational frequency for Harmonic Oscillator (3)

(b) Give mathematical quantum mechanical description of diatomic rigid states. (7)

Q.5-(a) What is activity coefficient? Determine the activity coefficient for sparingly soluble electrolytes? (5)

(b) Derive an expression of EMF of concentration cell with transference? (5)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

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Roll No.

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Section 2

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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Physical Chemistry

MAX. TIME: 15 Min.

Course Code: CHEM-301 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Inorganic Chemistry

MAX. TIME: 15 Min.

Course Code: CHEM-303 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

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Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i) What is the oxidation number of platinum in the coordination compound, $\text{Pt}(\text{NH}_3)_2\text{Cl}_2$?
a) +1 b) -1 c) 0 d) +2
- ii) The energy gap between conduction and valence band is termed as;
a) Potential energy band b) Kinetic energy band c) Forbidden Zone d) None of these
- iii) Which theory explains ionic bonding between metal ion and ligand in metal complexes?
a) VBT b) MOT c) CFT d) None of the above
- iv) The Crystal Field Stabilization Energy (CFSE) for the $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$ complex;
a) $2.0 \Delta_0$ b) $1.2 \Delta_0$ c) $2.4 \Delta_0$ d) $0.0 \Delta_0$
- v) The IUPAC name of $\text{K}_3[\text{Fe}(\text{CN})_6]$ is
a) Potassium hexacyano ferrate (II) b) Potassium hexacyano ferrate (III)
c) Potassium hexacyano ferrate (IV) d) None of these
- vi) Which one of the following ligands form a chelate:
a) Acetate b) Oxalate c) Cyanide d) Ammonia
- vii) In complex formation, the central metal ^{hv} acts as;
a) Lewis Base b) Lewis Acid c) Bronsted Acid d) Bronsted Base
- viii) Which d-orbital is used in dsp^2 hybridization resulting square planar geometry?
a) d_{xy} b) $d_{x^2-y^2}$ c) d_z^2 d) d_{xz}
- ix) The Magic number of iron in $[\text{Fe}(\text{CO})_4]^{-2}$ is;
a) 6 b) 7 c) 8 d) 9
- x) The strength of a ligand can be determined by:
a) Spectrochemical series b) Electrochemical series



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Inorganic Chemistry
Course Code: CHEM-303 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with Short Answers.

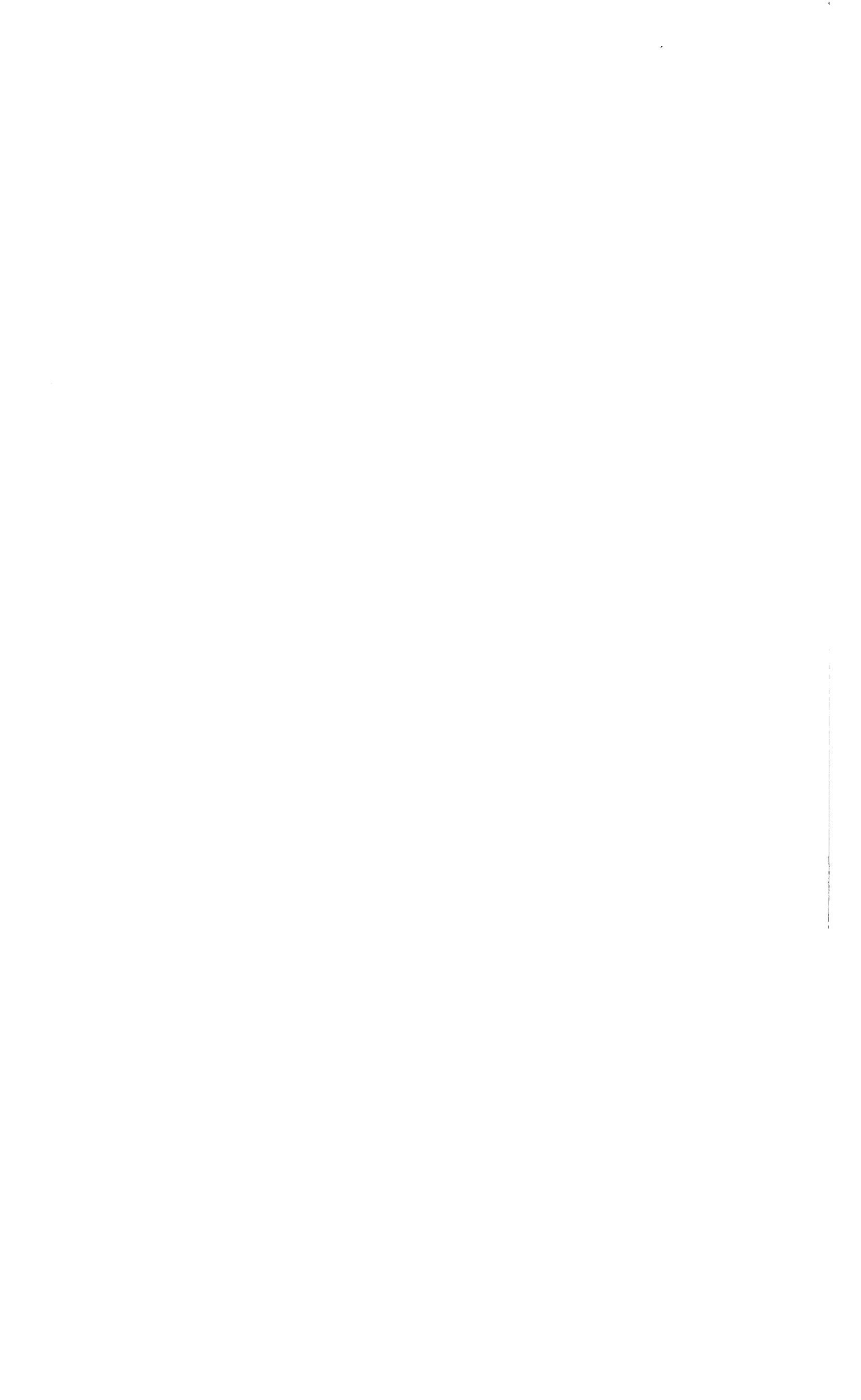
(2 x 10 = 20)

- i) Describe Metallic Bond on the basis of Band theory?
- ii) What is the effect of impurities on conductivity of the metal?
- iii) Draw the M.O diagram of $\text{Cr}(\text{CO})_6$
- iv) Give postulates of Werner's theory.
- v) Define Magic Number giving suitable examples.
- vi) Draw the structure of $[\text{CoF}_6]^{-3}$ on the basis of MOT.
- vii) Write a short note on Semi-Conductors?
- viii) What are Outer orbital complexes? Give an example?
- ix) Discuss any three methods for the preparation of $\text{Fe}(\text{CO})_5$.
- x) What are the limitations of CFT?

Q.3. Questions with Brief Answers.

(5 x 6 = 30)

- i) Discuss the structures of following on the basis of VBT.
a) $[\text{Fe}(\text{CN})_6]^{4-}$ b) $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$
- ii) Write a short note on Spectrochemical series.
- iii) Explain briefly Binding Energy in metals.
- iv) Describe the preparation and structure of $\text{Ni}(\text{CO})_4$.
- v) Predict the shape of the following molecules / ions on the basis of VSEPR model.
a) XeF_4 b) NH_4^+ c) IF_7
- vi) Describe the bonding in metal carbonyls on the basis of IR.





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Inorganic Chemistry

Course Code: CHEM-303 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

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Roll No.

PAPER: Inorganic Chemistry

Course Code: CHEM-303 Part – II

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MAX. MARKS: 50

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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Organic Chemistry

Course Code: CHEM-305 Part – II

MAX. TIME: 2 Hrs. 45 Min.

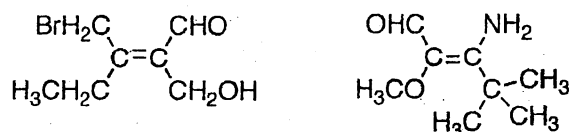
MAX. MARKS: 50

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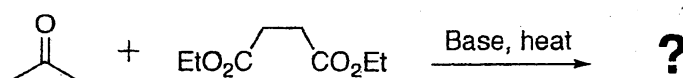
Q. No: 2 Answer the short questions.

(5 x 4 = 20)

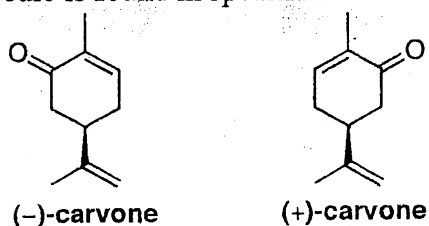
- a) Why the overall ring strain is minimum in cyclohexane, although the angle strain is minimum in cyclopentane.
- b) Assign *E* or *Z* configuration to the following compounds.



- c) Identify the named reaction and give its mechanism.



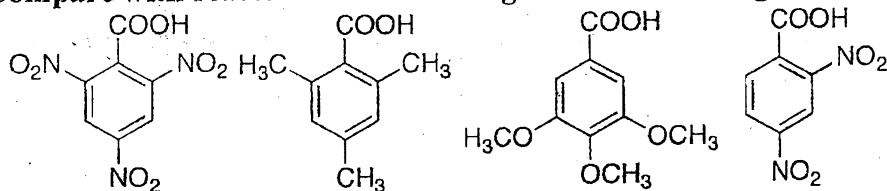
- d) Why amides are less basic than alkyl amines and benzoic acid is a stronger acid than cyclohexanoic acid.
- e) Carvone exists as two different stereoisomers. The R enantiomer is found in spearmint oil and the S isomer is found in caraway seeds. Which of the following molecule is found in spearmint oil?



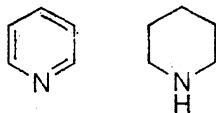
Q. No: 3 Answer the following long questions.

(30)

- a) Explain three examples of different classes of compounds which do not have chiral carbon but show optical activity. (6)
- b) Draw conformers of both *cis* and *trans* 1,2-dibromocyclohexane and mention the most stable conformer of both with reason. (4)
- c) i) Compare with reason the acidic strength of the following acids. (8)



- ii) Compare with reason the basic strength of the following. (2)



- d) Give detailed mechanism, conditions and synthetic applications of Reformatsky condensation and Mannich reaction. (10)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

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PAPER: Organic Chemistry

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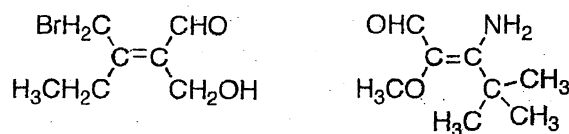
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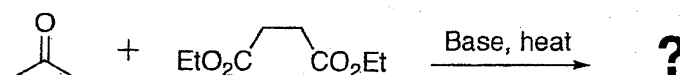
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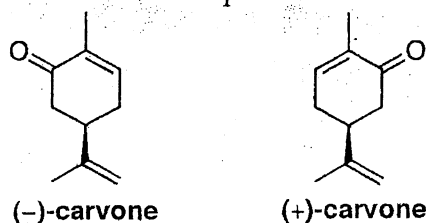
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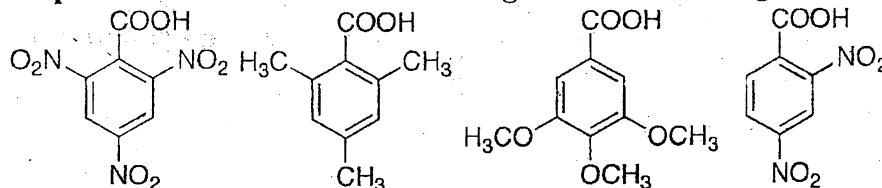
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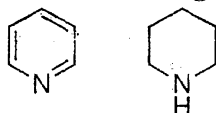
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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Organic Chemistry
Course Code: CHEM-305 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

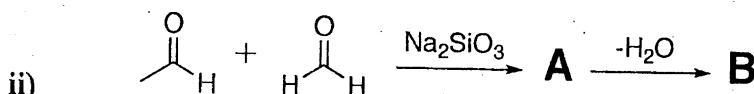
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Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

i) Which among the following show geometric isomerism;

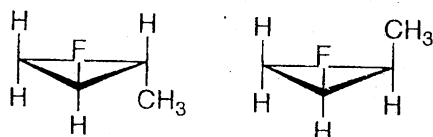
- a) $\text{CH}_3\text{CH}=\text{CHF}$ b) $(\text{CH}_3)_2\text{C}=\text{CHF}$
c) $\text{CH}_3\text{CH}=\text{CH}_2$ d) $(\text{CH}_3)_2\text{C}=\text{CH}_2$



What is B in above reaction;

- a) Acrolein b) Butenal
c) Crotonaldehyde d) both a & b

iii) The molecules shown below are;



- a) Enantiomers
b) Diastereoisomers
c) Identical
d) None

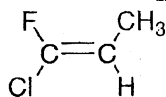
iv) Which conformation is most stable for cyclohexane;



v) Which of the following is more acidic;

- a) Phenol b) *o*-nitrophenol
c) *m*-nitrophenol d) *p*-nitrophenol

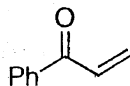
vi) Assign *E* or *Z* notation to the following compound;



- a) *E* b) *Z*
c) *R* d) None

P.T.O.

vii) Which combination of carbonyl compounds give phenyl vinyl ketone by an aldol condensation;

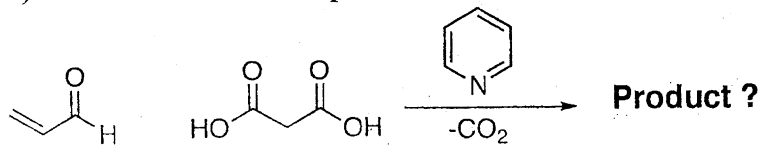


- a) Acetophenone & ketone
- b) Acetophenone & aldehyde
- c) Benzaldehyde & aldehyde
- d) Benzaldehyde & ketone

viii) Which of them is optically inactive;

- a) Allenes
- b) *ortho* substituted biphenyls
- c) Akynes
- d) Spiranes

ix) What will be the product of the following reaction;



- a) *Trans*-2, 4-pentadienoic acid
- b) *Cis*-2, 4-pentadienoic acid
- c) 3-Amino benzoic acid
- d) 2-Amino benzoic acid

x) Which is the most basic of the following compounds;

- a) Aniline
- b) *m*-nitroaniline
- c) *p*-nitroaniline
- d) *o*-nitroaniline



PAPER: Organic Chemistry
Course Code: CHEM-305 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

Signature of Supdt.:

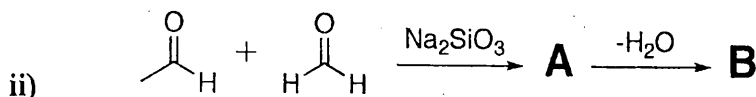
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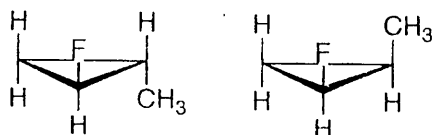
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What is B in above reaction;

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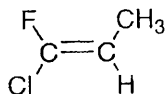
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- a) Phenol b) *o*-nitrophenol
c) *m*-nitrophenol d) *p*-nitrophenol

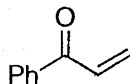
vi) Assign *E* or *Z* notation to the following compound;



- a) *E* b) *Z*
c) *R* d) None

P.T.O.

vii) Which combination of carbonyl compounds give phenyl vinyl ketone by an aldol condensation;

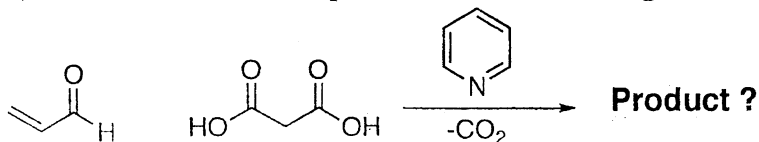


- a) Acetophenone & ketone
- b) Acetophenone & aldehyde
- c) Benzaldehyde & aldehyde
- d) Benzaldehyde & ketone

viii) Which of them is optically inactive;

- a) Allenes
- b) *ortho* substituted biphenyls
- c) Akynes
- d) Spiranes

ix) What will be the product of the following reaction;



- a) *Trans*-2, 4-pentadienoic acid
- b) *Cis*-2, 4-pentadienoic acid
- c) 3-Amino benzoic acid
- d) 2-Amino benzoic acid

x) Which is the most basic of the following compounds;

- a) Aniline
- b) *m*-nitroaniline
- c) *p*-nitroaniline
- d) *o*-nitroaniline



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Organic Chemistry

Course Code: CHEM-305 Part – II

MAX. TIME: 2 Hrs. 45 Min.

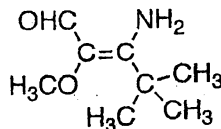
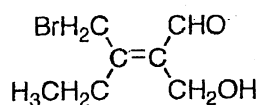
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED.

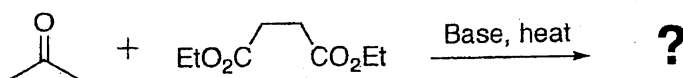
Q. No: 2 Answer the short questions.

(5 x 4 = 20)

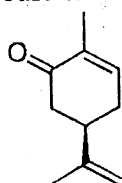
- a) Why the overall ring strain is minimum in cyclohexane, although the angle strain is minimum in cyclopentane.
- b) Assign *E* or *Z* configuration to the following compounds.



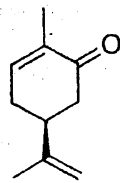
- c) Identify the named reaction and give its mechanism.



- d) Why amides are less basic than alkyl amines and benzoic acid is a stronger acid than cyclohexanoic acid.
- e) Carvone exists as two different stereoisomers. The R enantiomer is found in spearmint oil and the S isomer is found in caraway seeds. Which of the following molecule is found in spearmint oil?



(-)-carvone

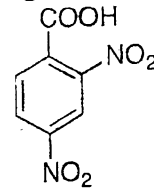
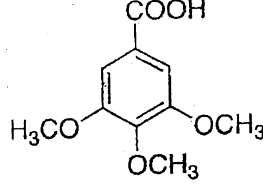
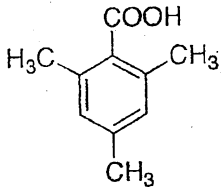
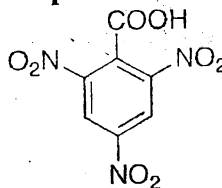


(+)-carvone

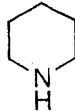
Q. No: 3 Answer the following long questions.

(30)

- a) Explain three examples of different classes of compounds which do not have chiral carbon but show optical activity. (6)
- b) Draw conformers of both *cis* and *trans* 1,2-dibromocyclohexane and mention the most stable conformer of both with reason. (4)
- c) i) Compare with reason the acidic strength of the following acids. (8)



- ii) Compare with reason the basic strength of the following. (2)



- d) Give detailed mechanism, conditions and synthetic applications of Reformatsky condensation and Mannich reaction. (10)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Analytical Chemistry

Course Code: CHEM-307 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i). _____ test is also known as Dixon's test.
- a) F-test (b) t-test
c) Q-test (d) X-test
- ii) Components which have small value of K have affinity for
- (a) mobile phase (b) stationary phase
(c) no phase (d) solution
- iii) Number of significant figures in 800.0 is _____
- a) one (b) two
c) four (d) six
- iv) The identification of elements, species and/or compounds present in a sample is known as _____
- a) Quantitative analysis (b) Qualitative analysis
c) Structural analysis (d) Both a & b
- v) The rounding off form of 9.47 is _____
- a) 9.4 (b) 9.5
c) 9.47 (d) All
- vi) Aqueous slurry of adsorbent powder is mixed with _____ binder to help it to adhere the plate in TLC.
- a) Plaster of paris (b) Gypsum
c) Polyvinyl alcohol (d) All
- vii) The cellulose filter paper used in paper chromatography is _____
- a) Hydrophobic (b) coloured
c) hydrophilic (d) none of the above
- viii) The range of vacuum ultraviolet region is _____
- a) 800 - 400nm (b) 400 -200nm
c) 200 - 50 nm (d) None
- ix) $\log(I_0/I) = \epsilon Cl$, where ϵ is called as _____
- a) Molar extinction coefficient (b) Molar absorption coefficient
c) Molar absorptivity (d) All
- x) Shifting of max towards the shorter wavelength is called _____
- a) bathochromic shift (b) hypsochromic shift
c) hyperchromic shift (d) hypochromic shift



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Analytical Chemistry

Course Code: CHEM-307 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(10x2=20)

- 1) A concentrated solution of 37% HCl having density 1.19g/ml is provided. What is the molarity of HCl?
- 2) What is the difference between precision and accuracy? Give example.
- 3) What is the main function of binder in TLC?
- 4) Define standard deviation? Give its formula.
- 5) Define confidence limit and give its formula?
- 6) What are the advantages of double beam spectrophotometer over single beam spectrophotometer?
- 7) Define Beer- Lambert's law.
- 8) What is the difference between partition and adsorption chromatography?
- 9) Write down 2 limitations of TLC.
- 10) What is kieselguhr? Where is it used?

Q.3. Questions with brief answers.

(3x10=30)

- i. (a) What is the difference between systematic and random errors? Explain with examples. (5)
(b) Define student t-test? What are the applications of F-test? (5)
- ii. (a) Discuss the methods for the detection of colorless spots in TLC? (5)
(b) What are the different types of adsorbents used in column chromatography? (5)
- iii. (a) How do electromagnetic radiations interact with matter? Explain. (5)
(b) How does photomultiplier tube work in UV/Vis spectrophotometers? (5)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Applied Chemistry

Course Code: CHEM-309 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (i) In 'WET PROCESS', the final product after grinding is termed as
- | | |
|-----------------|------------|
| a) Raw meal | b) Slurry |
| c) Precipitates | d) Clinker |
- (ii) Steam distillation is used to isolate the _____ compound
- | | |
|-----------------------|---------------------|
| a) Pressure sensitive | b) Heat sensitive |
| c) Low boiling point | d) Both (b) and (c) |
- (iii) The temperature required for conversion of SO₂ to SO₃ in catalyst tower
- | | |
|-----------------|-----------------|
| a) 300 – 400 °C | b) 400 – 500 °C |
| c) 500 – 600 °C | d) 200 – 300 °C |
- (iv) To impart blue color to the cement which of the following oxide is used
- | | |
|---------|-----------|
| a) Gold | b) Copper |
| c) Lead | d) Cobalt |
- (v) Which one of the following is not a 'BOGUE' compound
- | | |
|------------------------------|--------------------------------|
| a) Tricalcium silicate | b) Dicalcium silicate |
| c) Calcium sulfate dehydrate | d) Tetracalcium aluminoferrite |
- (vi) For sizing of fine materials, the most suitable equipment is a
- | | |
|-------------------|---------------------|
| a) Trommel | b) Gizzly |
| c) Shaking screen | d) Vibrating screen |
- (vii) Crystallization, evaporation and distillation are means of
- | | |
|--|---|
| a) Separating soluble substances in solution | b) Separating insoluble substances in solutions |
| c) Separating filtrate from solution | d) All of these |
- (viii) Castner Kelner cell is used for preparation of
- | | |
|---------|------------------------------------|
| a) NaOH | b) H ₂ SO ₄ |
| c) HCl | d) Na ₂ CO ₃ |
- (ix) Which of the following is used as a pressure filter ?
- | | |
|---------------------------|--------------------------------|
| a) Plate and frame filter | b) Rotary drum filter |
| c) Sand filter | d) Leaf filter (Moore filter). |
- (x) Evaporation takes place at
- | | |
|--|------------------------|
| a) Freezing point | b) Boiling point |
| c) In between freezing point and boiling point | d) At all temperatures |



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Applied Chemistry

Course Code: CHEM-309 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

(Short Questions)

- Q No. 02** Give short answers of the following questions (2 x 10)
- Write down the name of three processes used for the manufacturing of 'CAUSTIC SODA' on industrial scale.
 - Draw a labelled diagram of 'NELSON CELL'.
 - You are provided with the following mixtures, which techniques you would use to separate the (i) Chalk powder and water (ii) Sodium chloride and water (iii) Ethyl alcohol and water.
 - Differentiate between the sludge and scale.
 - What are the water softeners?
 - Describe the softening of water by 'complexation method'.
 - Write down the principle of 'REVERSE OSMOSIS'.
 - Give the composition of 'PORTLAND CEMENT'.
 - State any three uses of 'SULFURIC ACID'.
 - Define the term 'CLINKER' in the manufacturing of Portland cement.

(Long Questions)

- Q No. 03** (a) Write the balanced chemical equations processes that take place in the following chambers during the manufacturing of sulfuric acid. (i) Pyrite burner (ii) Contact tower (iii) Absorption tower (iv) Dilution tank. (7)
- (b) Write down the three conditions which are used in the converter reaction of the contact process to maximize the conversion of SO_2 to SO_3 . (3)
- Q No. 04** (a) Write down the role of the following water conditioning products and give two examples of each product (i) Phosphate dispersants (ii) Sequestering agents (iii) Oxygen scavenger (iv) Antifoaming or anti priming agents. (10)
- Q No. 05** (a) Differentiate between 'evaporation' and 'vaporization'. Briefly describe the working principle of the multiple effect evaporator. (5)
- (b) Describe the different methods of heat transfer with example. (5)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Bio Chemistry

Course Code: CHEM-311 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. In glucose the orientation of the —H and —OH groups around the carbon atom 5 adjacent to the terminal primary alcohol carbon determines

- (A) D or L series (B) Dextro or levorotatory
(C) α and β anomers (D) Epimers

2. Invert sugar is

- (A) Lactose (B) Sucrose
(C) Hydrolytic products of sucrose (D) Fructose

3. The monosaccharide units are linked by 1 \rightarrow 4 glycosidic linkage in

- (A) Maltose (B) Sucrose
(C) Cellulose (D) Cellobiose

4. Which of the following is a non-reducing sugar?

- (A) Isomaltose (B) Maltose
(C) Lactose (D) Trehalose

5. Which of the following is a reducing sugar?

- (A) Sucrose (B) Trehalose
(C) Isomaltose (D) Agar

6. A disaccharide formed by 1,1-glycosidic linkage between their monosaccharide units is

- (A) Lactose (B) Maltose
(C) Trehalose (D) Sucrose

7. The number of isomers of glucose is

- (A) 2 (B) 4
(C) 8 (D) 16

8. Adenine is

- (A) 6-Amino purine (B) 2-Amino-6-oxypurine
(C) 2-Oxy-4-aminopyrimidine (D) 2, 4-Dioxypyrimidine

9. Transfer RNAs are classified on the basis of the number of base pairs in

- (A) Acceptor arm (B) Anticodon arm
(C) D arm (D) Extra arm

10. The fact that DNA bears the genetic information of an organism implies that

- (A) Base composition should be identical from species to species
(B) DNA base composition should change with age
(C) DNA from different tissues in the same organism should usually have the same base composition
(D) DNA base composition is altered with nutritional state of an organism



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Bio Chemistry

Course Code: CHEM-311 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(10 x 2 = 20)

- i. Draw D and L isomers of Glyceraldehyde.
- ii. What do you mean by a reducing disaccharide? Give an example with structure.
- iii. What do you mean by a non-reducing disaccharide? Give an example with structure.
- iv. Give two examples of storage homopolysaccharides.
- v. Explain the term invert sugar.
- vi. Give two examples of buffering agents.
- vii. What do mean by Dextran.
- viii. Give functions of Mitochondria.
- ix. Differentiate between Proteoglycans and Glycoproteins.
- x. Explain briefly the cell wall composition.

Q.3. Questions with brief answers.

(3 x 10 = 30)

- i. Describe the cyclic structure of monosaccharides.
- ii. Explain optical isomerism and mutarotation in glucose.
- iii. How isolation of cellular components occurs? Explain briefly.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Micro Economics

Course Code: ECON-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.No.2 write short answers to the following

(5 x 4=20)

- I. Price effect
- II. Indifference curve
- III. The assumptions of imperfect competition
- IV. The relationship between marginal revenue and price elasticity

Q.No.3 Explain the short run equilibrium under perfect competition with the help of graphs.

(10)

Q.No.4 Explain and discuss the short run curves of traditional cost theory.

(10)

Q.No.5 Explain the laws of return to scale with the help of graphs.

(10)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Micro Economics

MAX. TIME: 15 Min.

Course Code: ECON-301 Part-I (Compulsory)

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. When price elasticity is less than one, changes in price and in total expenditures always moves in -

 - a) Opposite direction
 - b) Same direction
 - c) Both a and b
 - d) all of the above
2. The equilibrium price ----- and equilibrium quantity-----of new cars, if the government imposes the sales tax on car manufacturers.
 - a) rise, rise
 - b) fall, rise
 - c) rise, fall
 - d) fall, fall
3. A decline in airfares cause the demand of inter-city bus to----- and the equilibrium bus fare tend to be-----.
 - a) Lower, higher
 - b) Lower, lower
 - c) Higher, higher
 - d) Higher, low
4. Which of the following would be studied primarily by micro economist?
 - i) Does increase in government spending will lower the unemployment rate?
 - ii) Does Microsoft Corporation's dominance of the software industry harm consumers?
 - iii) Why is the average rate of household saving low in Pakistan?
 - iv) All of the above.
5. Find the profit maximizing price and level of output for a monopolist with the demand curve $p=12-q$ and the marginal cost $MC=2q$, where p is the price and Q is the output per week.
 - a) $P=12, q=3$
 - b) $P=9, q=3$
 - c) $P=3, q=3$
 - d) $P=9, q=9$
6. Shape of short run Marginal Cost curve is:
 - a) Horizontal
 - b) Vertical
 - c) U shape
 - d) Negative slope
7. Zero coefficient of cross price elasticity means:
 - a) The two commodities are substitutes
 - b) The two commodities are complementary goods
 - c) The two commodities are not related
 - d) None of the above
8. Slope of indifference curve is/are:
 - a) Negative
 - b) The units of y commodity sacrificed to obtain another unit of x
 - c) Marginal rate of substitution
 - d) All of the above
9. The production function $Q = L^a K^b$ has ----- if $a + b = 1$.
 - a) Constant return to scale
 - b) Increasing return to scale
 - c) Decreasing return to scale
 - d) Diminishing returns of labor
10. What is the elasticity of demand for office table, when the price of a table is RS.400, buyers wish to purchase 10,000 tables, when the price falls to RS.380, and quantity demand rises to 12,000 tables? What is the elasticity of demand?
 - a) 1.263
 - b) 4.0
 - c) 0.7916
 - d) 1.14



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Econometrics-I

MAX. TIME: 15 Min.

Course Code: ECON-302 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1.	Suppose that a test that the true value of the intercept coefficient is zero results in non-rejection. What would be the appropriate conclusion? a) Drop the intercept and re-run the regression b) Retain the intercept c) Re-compute the test statistic d) The regression line is running exactly through the origin
2.	If an estimator is said to have minimum variance, which of the following statements is NOT implied? a) The probability that the estimate is a long way away from its true value is minimised b) The estimator is efficient c) Such an estimator would be termed "best" d) Such an estimator will always be unbiased
3.	In the context of simultaneous equations modelling, which of the following statements is true concerning an endogenous variable? a) The values of endogenous variables are determined outside the system b) There can be fewer equations in the system than there are endogenous variables c) Reduced form equations will not contain any endogenous variables on the RHS d) Reduced form equations will contain only endogenous variables on the RHS
4.	Near multicollinearity occurs when a) Two or more explanatory variables are perfectly correlated with one another b) The explanatory variables are highly correlated with the error term c) The explanatory variables are highly correlated with the dependent variable d) Two or more explanatory variables are highly correlated with one another
5.	Which one of the following is examined by looking at a goodness of fit statistic? a) How well the population regression function fits the data b) How well the sample regression function fits the population regression function c) How well the sample regression function fits the data d) How well the population regression function fits the sample regression function.

P.T.O.

6.	<p>What would be the consequences for the OLS estimator if heteroscedasticity is present in a regression model but ignored?</p> <ul style="list-style-type: none"> a) It will be biased b) It will be inconsistent c) It will be inefficient d) All of (a), (b) and (c) will be true.
7.	<p>Which of the following could be used as a test for autocorrelation up to third order?</p> <ul style="list-style-type: none"> a) The Durbin Watson test b) White's test c) The RESET test d) The Breusch-Godfrey test
8.	<p>If OLS is applied separately to each equation that is part of a simultaneous system, the resulting estimates will be</p> <ul style="list-style-type: none"> a) Unbiased and consistent b) Biased but consistent c) Biased and inconsistent d) It is impossible to apply OLS to equations that are part of a simultaneous system
9.	<p>The order condition is</p> <ul style="list-style-type: none"> a) A necessary and sufficient condition for identification b) A necessary but not sufficient condition for identification c) A sufficient but not necessary condition for identification d) A condition that is neither necessary nor sufficient for identification
10.	<p>Negative residual autocorrelation is indicated by which one of the following?</p> <ul style="list-style-type: none"> a) A cyclical pattern in the residuals b) An alternating pattern in the residuals c) A complete randomness in the residuals d) Residuals that are all close to zero



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Econometrics-I
Course Code: ECON-302 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2. Explain the following briefly.

- (i) Coefficient of Determination
- (ii) Perfect and partial multicollinearity
- (iii) Indirect Least Squares
- (iv) Order and Rank conditions
- (v) Generalized Least Square

4 x 5
=20

Q3. Consider the following regression output:

$$\hat{Y}_t = 0.2033 + 0.6560X_t$$

$$se = (0.0976) (0.1961)$$

$$r^2 = 0.397 \quad RSS = 0.0544 \quad ESS = 0.0358$$

10

where Y = labor force participation rate (LFPR) of women in 1972 and X = LFPR of women in 1968. The regression results were obtained from a sample of 19 cities in the United States.

- a. How do you interpret this regression?
- b. Test the hypothesis: $H_0: \beta_2 = 1$ against $H_1: \beta_2 > 1$. Which test do you use? And why? What are the underlying assumptions of the test(s) you use?
- c. Suppose that the LFPR in 1968 was 0.58 (or 58 percent). On the basis of the regression results given above, what is the mean LFPR in 1972? Establish a 95% confidence interval for the mean prediction.
- d. How would you test the hypothesis that the error term in the population regression is normally distributed? Show the necessary calculations.

Q4. Consider the sets of data given in the following two tables:

Table 1		
Y	X2	X3
1	2	4
2	0	2
3	4	12
4	6	0
5	8	16

Table 2		
Y	X2	X3
1	2	4
2	0	2
3	4	0
4	6	12
5	8	16

10

The only difference between the two tables is that the third and fourth values of X_3 are interchanged.

- a) Regress Y on X_2 and X_3 in both tables, obtaining the usual OLS output.
- b) What difference do you observe in the two regressions? And what accounts for this difference?

Q5. From the data for 46 states in the United States for 1992, Baltagi obtained the following regression results[†]:

$$\widehat{\log C} = 4.30 - 1.34 \log P + 0.17 \log Y$$

$$se = (0.91) \quad (0.32) \quad (0.20) \quad \bar{R}^2 = 0.27$$

where C = cigarette consumption, packs per year
 P = real price per pack
 Y = real disposable income per capita

- a. What is the elasticity of demand for cigarettes with respect to price? Is it statistically significant? If so, is it statistically different from one?
- b. What is the income elasticity of demand for cigarettes? Is it statistically significant? If not, what might be the reasons for it?
- c. How would you retrieve R^2 from the *adjusted* R^2 given above?

10



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Mathematical Economics-I
Course Code: ECON-303 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- When we give one value to independent variable and attain one value for dependent variable then it is called:
 - Relation
 - Function
 - Multi-valued function
 - Decreasing function
- The general representation of implicit function is:
 - $I=f(y)$
 - $Y=f(I)$
 - $F(x, y) = 0$
 - $Y=f(x)$
- Slope of function $Y=f(x)=11$ is
 - Positive
 - Negative
 - Infinite
 - Zero
- If $Qd_1=10-2P_1+P_2$, here the positive sign of P_2 shows that goods are:
 - Complements
 - Substitutes
 - Luxuries
 - Inferior
- The variable whose value is determined within the model is called:
 - Endogenous variables
 - Exogenous variables
 - Independent variables
 - Dependent variables
- According to the transpose property if $(AB)^t = \dots$
 - $A^t B^t$
 - $B^t A^t$
 - $A^{-1} B^t$
 - $A^t B^{-1}$
- If the matrix has zeros above or below the principle diagonal, then it is called:
 - Diagonal matrix
 - Identity matrix
 - Tri-angular matrix
 - Null matrix
- If $QP=a$, this type of function has elasticity equal to:
 - $E>1$
 - $E<1$
 - $E=1$
 - $E=0$
- If $f(x)=(dy/dx) > 0$, then the function is:
 - Increasing function
 - Decreasing function
 - Implicit function
 - Explicit function
- If $d(TC)/dQ = 0$, $d^2(TC)/dQ^2 > 0$, then the cost will be:
 - Maximum
 - Minimum
 - Increasing
 - Decreasing



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Mathematical Economics-I
Course Code: ECON-303 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2 Write the short answers (4 X5 =20)

- (i) Differentiate Singular and Non-singular matrix
- (ii) Differentiate Endogenous variable and Exogenous variable
- (iii) Differentiate Function and Relation.
- (iv) Write down the properties of Matrix Inversion.
- (v) If $Q = 70 - 5P$. Then find the slope of TR (Total Revenue)

Q.3 If $Q_d = 20 - 3p$ $Q_s = -5 + 29$ and $Q_d = Q_s$

- a) Find equilibrium price (p) and equilibrium quantity (Q). (5)
- b) Find Elasticity of demand and elasticity of supply at P and Q (5)

Q.4 a) If slope= $m= 3$ and intercept is at (0, 5). Find the equation of straight line.

b) If $Q_d = 20-5P$ and $Q_s = 4 + 3P$ (Govt. Imposes 20 % tax on supplier) then find the values of P and Q with and without tax. (4, 6)

Q.5 Use Cramer's Rule to solve the following equations systems:

$$\begin{aligned} 8X_1 - X_2 &= 16 \\ 2X_2 + 5X_3 &= 5 \\ 2X_1 + 3X_3 &= 7 \end{aligned} \quad (10)$$





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: General Equilibrium and Welfare Economics

Course Code: ECON-304 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(5 x 4 = 20)

- i. Differentiate between general equilibrium analysis and partial equilibrium analysis?
- ii. What is the difference between equity and efficiency?
- iii. What is the difference between first and second fundamental theorems of welfare economics?
- iv. Differentiate between production efficiency and product mix efficiency?
- v. Discuss Pareto optimality criterion of social welfare.

Q.3. Questions with long answers.

(3 x 10 = 30)

- (i) Explain the Bentham's and Bergson criterion of social welfare. (10)
- (ii) Using an Edgeworth box, illustrate and explain the concept of Pareto efficiency. (10)
- (iii) Are competitive markets Pareto efficient? Explain (10)





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: General Equilibrium and Welfare Economics MAX. TIME: 15 Min.

Course Code: ECON-304 Part-I (Compulsory) MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- I. The slope of the utility possibility frontier is
(a) positive. (b) negative. (c) zero. (d) undefined.
- II. General equilibrium analysis is different from partial equilibrium analysis in that general equilibrium analysis
(a) explicitly takes feedback effects into account and partial equilibrium analysis does not.
(b) does not take into consideration specific problems, but partial equilibrium analysis does.
(c) takes into consideration specific problems, but partial equilibrium analysis does not.
(d) allows one to arrive at a specific conclusion, but partial equilibrium analysis does not.
- III. Efficiency in consumption requires
(a) that some goods are scarce. (b) luck. (c) that MRS are equal for all consumers. (d) that $MRS = MRT$.
- IV. In a problem involving exchange, the contract curve shows
(a) all exchanges that make both parties better off.
(b) the one exchange that makes both parties better off.
(c) all possible allocations of goods between both parties.
(d) all possible efficient allocations between both parties.
- V. Suppose Kelly and Jerry are at an allocation bundle where their MRS are not equal. Then:
(a) they are happy. (b) they are outside the Edgeworth box.
(c) there are gains from trade. (d) there is an equilibrium.
- VI. The main point of the second theorem of welfare economics is that:
(a) efficiency is more important than equity.
(b) efficiency may be achieved, but equity is not a feasible goal.
(c) any attempt to achieve an equitable outcome must occur off the contract curve.
(d) any equitable outcome can be achieved by reallocating the resources among the members of a society.
- VII. The first theorem of welfare economics states that:
(a) a competitive equilibrium is Pareto efficient.
(b) all prices are equal in a competitive equilibrium.
(c) a competitive equilibrium maximizes the supply of goods.
(d) a competitive equilibrium maximizes profits.
- VIII. A pure private good is
(a) nonrival in consumption and subject to exclusion. (b) rival in consumption and subject to exclusion.
(c) rival in consumption and not subject to exclusion. (d) all of the above
- IX. An allocation in which one person can be made better off only by making someone else worse off is
(a) inefficient. (b) efficient. (c) a partial equilibrium. (d) a general equilibrium.
- X. Which of these statements is generally accepted by economists? Perfect competition
(a) provides both equity and efficiency.
(b) provides equity but not necessarily efficiency.
(c) provides efficiency but not necessarily equity.
(d) generally satisfies neither efficiency nor equity.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Labor Economics

Course Code: ECON-305 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Question No. 2 Write short answer to the following (4 x 5=20)

- i. Wage rigidity
- ii. Labour Market indicators
- iii. Minimum wage law
- iv. Backward bending supply of Labour Curve
- v. Trade Unions

Question No. 3

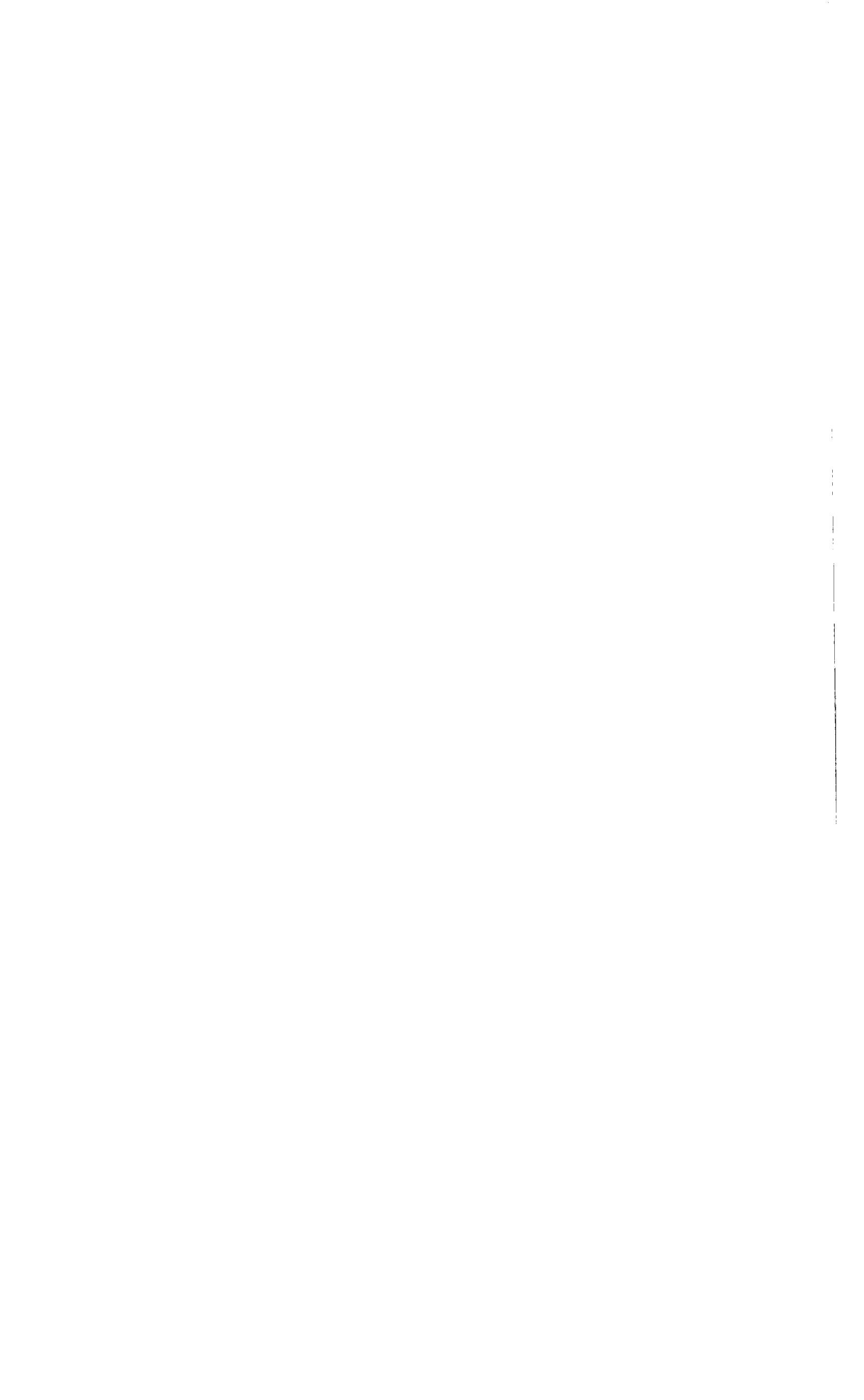
Define Philips Curve. How is it related to inflation, unemployment & wages? (10)

Question No. 4

Evaluate the effects of functioning of labour market due to discrimination by gender, race & ethnicity. (10)

Question No. 5

Discuss the major causes of unemployment in Pakistan. (10)





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Labor Economics

Course Code: ECON-305 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

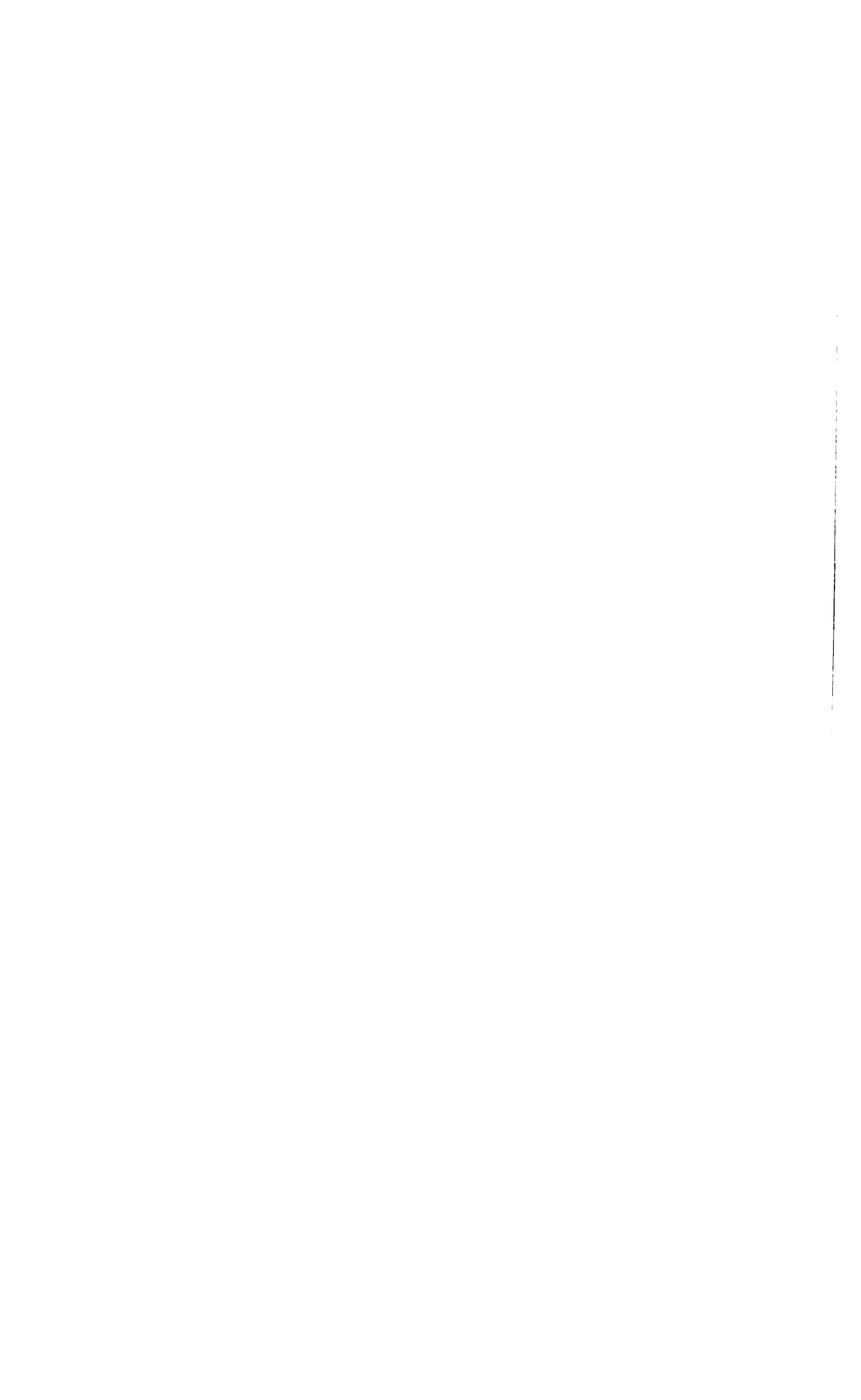
Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. If there is cyclical unemployment in the economy, the Govt. might.
 - a) Increase interest
 - b) Cut income tax
 - c) Encourage saving
 - d) Reduce Govt. spending
2. The movement of a worker from one occupation to another in the same grade is:
 - a) Vertical mobility
 - b) Horizontal mobility
 - c) Geographical mobility
 - d) None of them
3. Union leaders are in a better position to bargain for higher wage if demand for labour is:
 - a) Elastic
 - b) Inelastic
 - c) Very large
 - d) Permanent
4. The Philips Curve shows relationship between inflation and what?
 - a) Rate of growth
 - b) Rate of price
 - c) Balance of trade
 - d) Unemployment
5. Sometime the supply curve of labour bends:
 - a) Downward
 - b) Upward
 - c) Backward
 - d) Firstly upward & then downward
6. The situation in which prices and unemployment increases
 - a) Inflation
 - b) Deflation
 - c) Stagflation
 - d) Demand pull inflation
7. In a competitive market, the demand curve for labour is given by which one of the followings:
 - a) Marginal revenue product
 - b) Marginal cost
 - c) Total revenue product
 - d) Marginal physical product
8. Every factor of production gets rewards equal to:
 - a) Value of average product
 - b) Total revenue
 - c) Value of total product
 - d) Value of marginal product
9. If marginal product of labour (MPL) rises because of new technology:
 - a) Wages will rise
 - b) Wages will fall
 - c) May rise or fall
 - d) Wages will unaffected
10. fixing of minimum wages:
 - a) Raises demand for labour
 - b) Raises profits
 - c) Causes unemployment
 - d) Is welcomed by employers





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Educational Assessment
Course Code: EDE-322 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give the short answers of these questions.

(5x4=20)

1. Define the term "Evaluation".
2. What are the objectives of Evaluation?
3. Enlist types of validity.
4. Describe the methods of checking reliability
5. What are the types of scales used in assessment?

Q.3. Give long answers to the following questions.

(3x10=30)

1. What are the characteristics of a good Test?
2. Differentiate between Measurement and Evaluation
3. Describe the principles of preparing Objective type items.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Educational Assessment

MAX. TIME: 15 Min.

Course Code: EDE-322 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

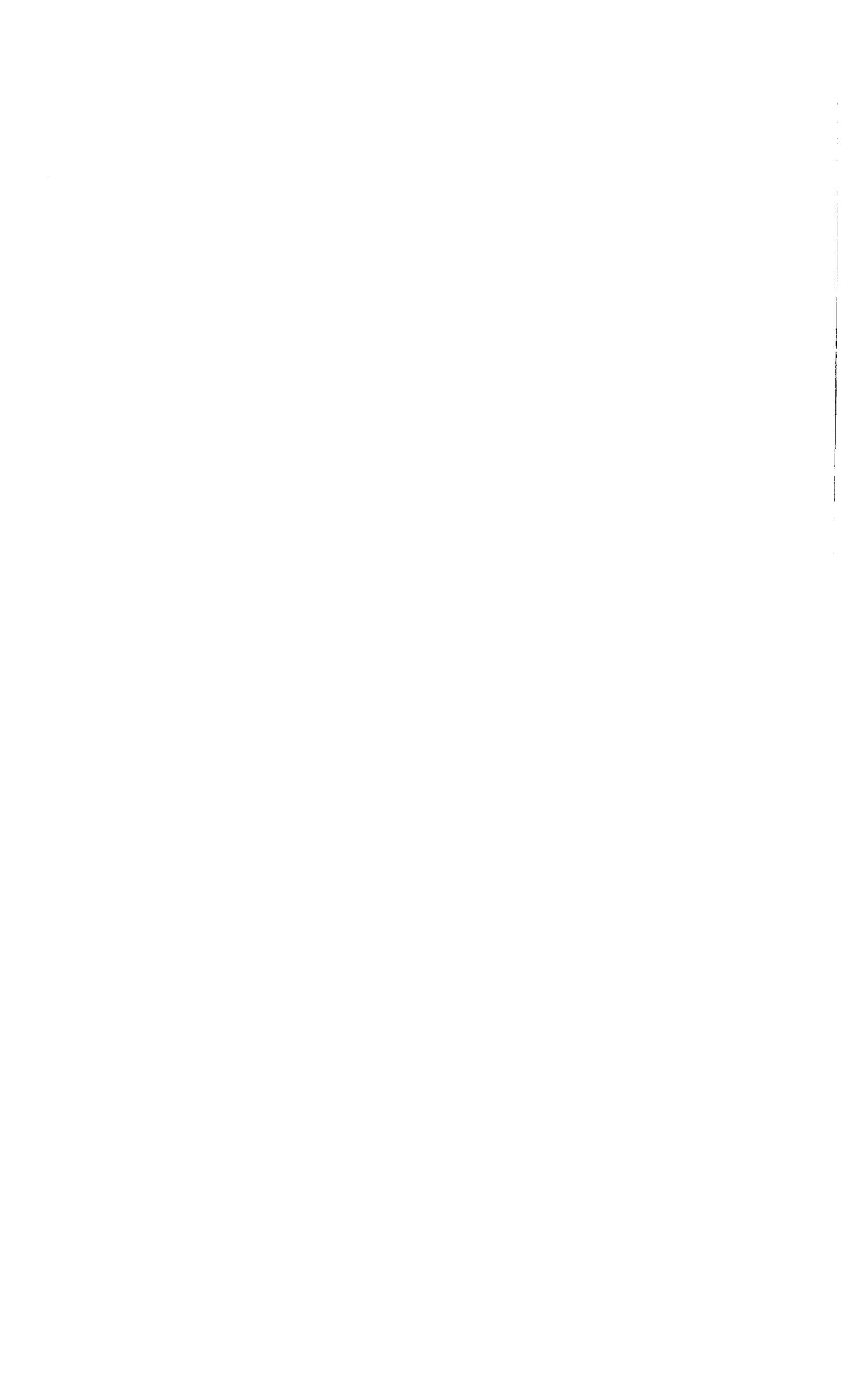
Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- 1- The process of obtaining numerical value is...
A Evaluation B) Assessment
C Measurement D) Test
- 2- The summative evaluation is
A Diagnostic B) Continuous
C certifying judgment D) None of above
- 3- Broader in meaning is
A specific objectives B) Aims
C Instructions objectives D) objectives
- 4- In which question marking will be more reliable?
A completion B) essay
C MCQs D) Short answers
- 5- Which appropriate verb will you use to make an objective behavioral?
A To Know B) To appreciate
C To understand D) To construct
- 6- objectives representing the purposes of instructions of a teacher are called?
A Instructional B) performance
C attainment D) None of the above
- 7- A multiple choice statement is composed of questions referred as
A Distracter B) Foil
C Stem D) Response
- 8- Kuder Richardson is used to estimate ...
A Objectivity B) Usability
C Reliability D) validity
- 9- The incorrect option in MCQs use are ...
A Answers B) premise
C Response D) Destructor
- 10- The purpose of the evaluation is to make?
A) Decision B) Prediction
C) Judgment D) Opinion





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

PAPER: History-III

Course Code: EDE-161 Part – II

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

درج ذیل سوالات کے جوابات اپنی جوابی کاپی پر تحریر کیجیے۔

سوال نمبر ۲۔ مختصر جواب دیں۔

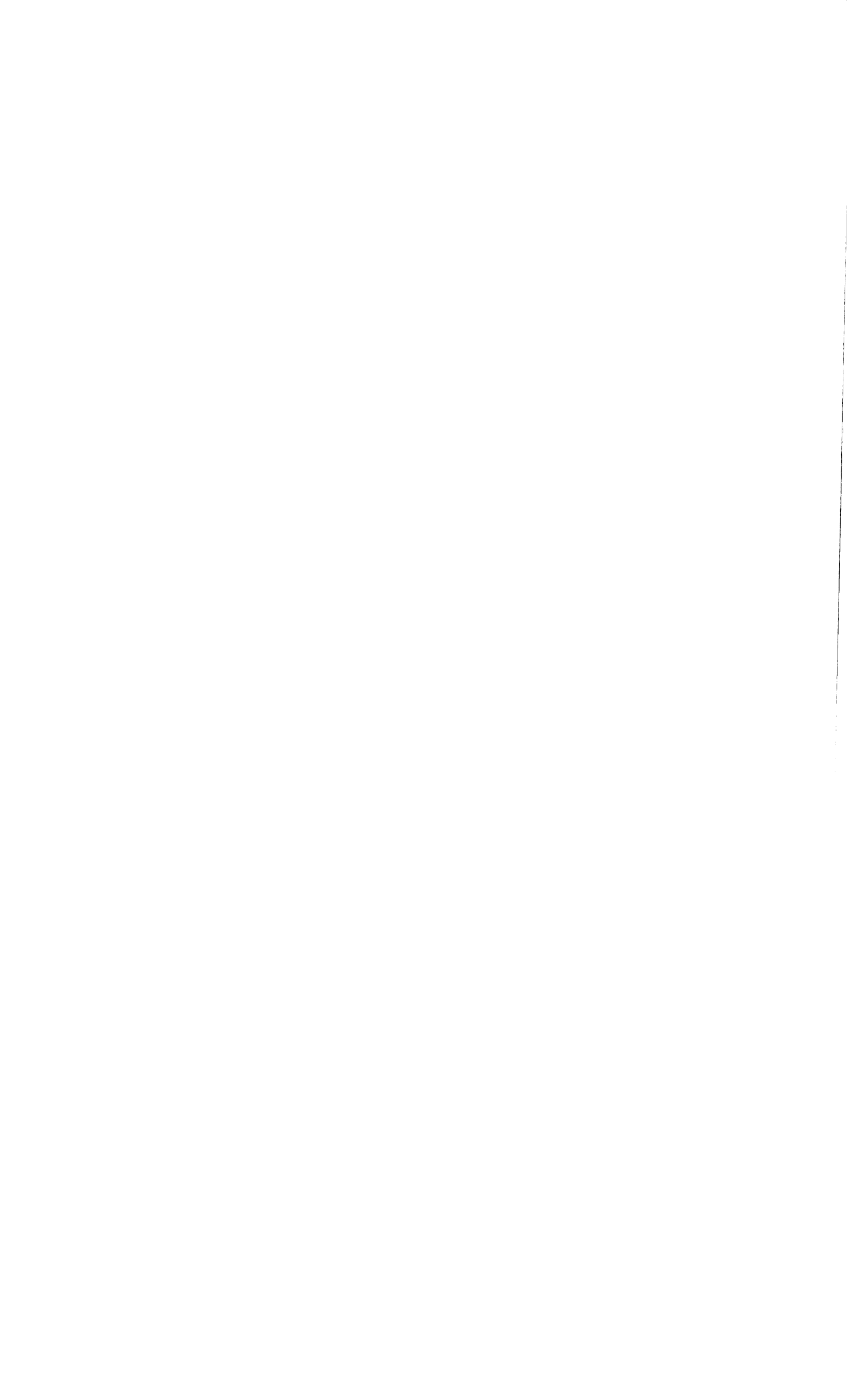
(10x2=20)

- ۱۔ ہندوستانی سیاسی پارٹیوں نے سامن کمیشن کا بائیکاٹ کیوں کیا۔
- ۲۔ تجاویز دہلی کب اور کس نے پیش کیا؟
- ۳۔ شملہ وفد کب اور کس وائسرائے سے ملا؟
- ۴۔ تقسیم بنگال کی دو وجوہات بتائیں۔
- ۵۔ سرسید احمد خاں کی ۵ تصانیف کے نام لکھیں۔
- ۶۔ وقار الملک کا اصل نام کیا ہے؟
- ۷۔ فیروز پورٹ کے دو نکات تحریر کیجیے۔
- ۸۔ ہندو مسلم اتحاد کا سفیر کے کہا جاتا ہے؟
- ۹۔ کانفرنس کب اور کیوں قائم کی گئی؟
- ۱۰۔ آرج بولڈ کون تھا؟

سوال نمبر ۳: درج ذیل سوالات کے تفصیلی جواب دیں۔

(3x10=30)

- ۱۔ سرسید احمد خاں کی تحریک علی گڑھ کی اہمیت بیان کریں؟
- ۲۔ جداگانہ انتخاب سے کیا مراد ہے اور اسکے حصول کے لیے ہندوستانی مسلمانوں کی جدوجہد بیان کریں۔
- ۳۔ قائد اعظم کے چودہ نکات کے پس منظر اور نکات پر بحث کریں۔





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: History-III
Course Code: EDE-161 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

نوٹ: ہر سوال کے چار ممکنہ جوابات میں سے درست جواب پر (۷) کا نشان لگائیں۔ (1x10=10)

1- آل انڈیا مسلم لیگ کی تشکیل کس شہر میں ہوئی؟

(ا) ڈھاکہ (ب) لاہور (ج) کراچی (د) علی گڑھ

2- محمد علی جوہر کہاں دفن ہیں؟

(ا) جالندھر (ب) لندن (ج) یروشلم (د) مدینہ

3- وفد شہدہ کی قیادت کس نے کی؟

(ا) محمد علی جناح (ب) محمد علی جوہر (ج) سرآغا خاں (د) وقار الملک

4- لندن مسم لیگ براچ کس نے قائم کی؟

(ا) محمد علی جناح (ب) سرآغا خاں (ج) جسٹس امیر علی سید (د) محمد علی جوہر

5- تنسیخ بیگال کب ہوئی؟

(ا) 1910ء (ب) 1911ء (ج) 1912ء (د) 1913ء

6- 1928ء میں کونسا کمیشن برصغیر کے دورہ پر آیا؟

(ا) کریس مشن (ب) دزاتی کمیشن (ج) رولٹ کمیٹی (د) سائنس کمیشن

7- واقعہ چوری پورا کب وقوع پذیر ہوا؟

(ا) 1922ء (ب) 1920ء (ج) 1923ء (د) 1921ء

8- رسالہ اسباب بغاوت ہند کس سال اشاعت ہوئی؟

(ا) 1857ء (ب) 1858ء (ج) 1859ء (د) 1961ء

9- بی امان نے کس تحریک میں اہم کردار ادا کیا؟

(ا) تقسیم پاکستان (ب) تحریک ریشمی رومال (د) تریک خلافت (ج) ہندوستان چھوڑ دو تحریک

(۱۵) - نمرورپورٹ کب شائع ہوئی؟

(ا) 1916 (ب) 1924 (ج) 1928 (د) 1929





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Sociology-III

Course Code: EDE-169 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. According to Max Weber, modern world rests its political bases upon
 - a. Legal/Rational authority
 - b. Superficial authority
 - c. Conventional authority
 - d. Religious authority
2. A set of propositions attempting on explaining certain social phenomenon can be termed as
 - a. Social propositions
 - b. Sociological Theory
 - c. Both of above
 - d. None of above
3. Who among the following could be understood as an earliest sociologist
 - a. Albert Einstein
 - b. Emile Durkhiem
 - c. Auguste Comte
 - d. Ibn e Khuldun
4. According to Max Weber _____ is the organizational structure modern world is primarily based upon
 - a. Bureaucracy
 - b. Aristocracy
 - c. Democracy
 - d. Theocracy
5. Global warming is caused by
 - a. Greenhouse effect
 - b. Deforestation
 - c. Both a & b
 - d. None of above
6. According to Durkhiem, _____ social solidarity held the traditional society together
 - a. Organic
 - b. Inorganic
 - c. Traditional
 - d. Mechanical

P.T.O.

-
7. Violation of which of the following norms does mean crime
- a. Folkways
 - b. Mores
 - c. Laws
 - d. None of above

8. Genocide is an example of
- a. Hate Crime
 - b. Victimless crime
 - c. Mass Crime
 - d. Organized Crime

-
9. Drug addiction in Pakistan is an example of
- a. Hate Crime
 - b. High Crime
 - c. Victimless Crime
 - d. White Collar Crime

10. Comte's evolutionary theory is also well known as
- a. Law of four evolutionary stages
 - b. Path to positivism
 - c. Law of three stages
 - d. None of above
-



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Sociology-III

Course Code: EDE-169 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers.

(2 x 10 = 20)

- i. What is a rain forest?
- ii. What is meant by monotheism?
- iii. What does Ibn e Khuldun mean by Asbiya?
- iv. What does weber mean by rational authority?
- v. Who is known to be father of modern sociology?
- vi. What is Global Warming?
- vii. Define Illitracy.
- viii. What is Mechanical solidarity as conceptualized by Durkheim?
- ix. Define Egoistic Suicide.
- x. What is Industrialization?
- x. What is charismatic authority?

Q.3. Give Brief Answer

(3 x 10 = 30)

- i. Discuss Max Weber's concept of Bureaucracy. Also discuss how bureaucratization has been the backbone of modern societies.
- ii. Write a detailed note on comte's evolutionary theory.
- iii. What is meant by Illiteracy? Briefly discuss its causes and effects, and suggest a way forward to minimize it.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Teaching of Urdu in Elementary Schools
Course Code: EDE-372 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

حصہ اول (معروضی) درست جواب پر نشان لگائیں

- | | | | | |
|--------------------|--------------------|------------------|------------------|--------------------------------------|
| اشفاق احمد | عمیرہ احمد | بانو قدسیہ | قدرت اللہ شہاب | 1- "راج گدھ" تخلیق ہے |
| ماتھا نوپے | رنجھا نوپے | پھندا نوپے | کھمبا نوپے | 2- کھسیانی بلی |
| روز روز نہیں پڑھتی | بار بار نہیں پڑھتی | روز روز پڑھتی ہے | بار بار پڑھتی ہے | 3- کاتھ کی ہنڈیا |
| عبد العظیم شرر | ڈپٹی نذیر احمد | شبلی نعمانی | احمد ندیم قاسمی | 4- اردو کے پہلے ناول نگار کا نام ہے |
| صحافت میں | افسانہ میں | موسیقی میں | تیلیج میں | 5- اشفاق احمد کا نام شہرت رکھتا ہے |
| علامہ اقبال کی | حالی کی | حفیظ جالندھری کی | صیب جالب کی | 6- قومی ترانہ تخلیق ہے |
| فارسی | ترکی | فرانسسیسی | عربی | 7- اردو کس زبان کا لفظ ہے۔ |
| صحافت میں | غزل میں | موسیقی میں | افسانہ میں | 8- پروین شاکر کا نام شہرت رکھتا ہے |
| دہلی میں | کلکتہ میں | مداس میں | لکھنؤ میں | 9- فورٹ ولیم کالج 1800ء میں بنا |
| | | | | 10- ہر خطہ ہے مومن کی نئی شان نئی آن |

(شعر مکمل کریں)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Teaching of Urdu in Elementary Schools

Course Code: EDE-372 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

حصہ دوئم درج ذیل سوالات کے مختصر جوابات تحریر کریں۔ (5x4=20)

س 1- اردو زبان کا ارتقاء مختصراً بیان کریں۔

س 2- بچوں میں خوش خوانی کے مسائل بیان کریں

س 3- سبق خاکہ کی اہمیت بیان کریں۔

س 4- ابتدائی جماعتوں میں تدریس اردو کے مقاصد بیان کریں۔

حصہ سوم درج ذیل سوالات کے مختصر جوابات تحریر کریں۔ (3x10=30)

س 5- طلباء میں الاء کے مسائل کی نشاندہی کریں نیز ان کے حل کے لئے تجاویز بھی دیں

س 6- جماعت دوم کے لئے سبق "تلی" کا سبق خاکہ تیار کریں۔

س 7- سمعی و بصری معاونات کی اقسام و اہمیت واضح کریں۔



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Methods of Teaching Science in Elementary Schools
Course Code: EDE-373 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

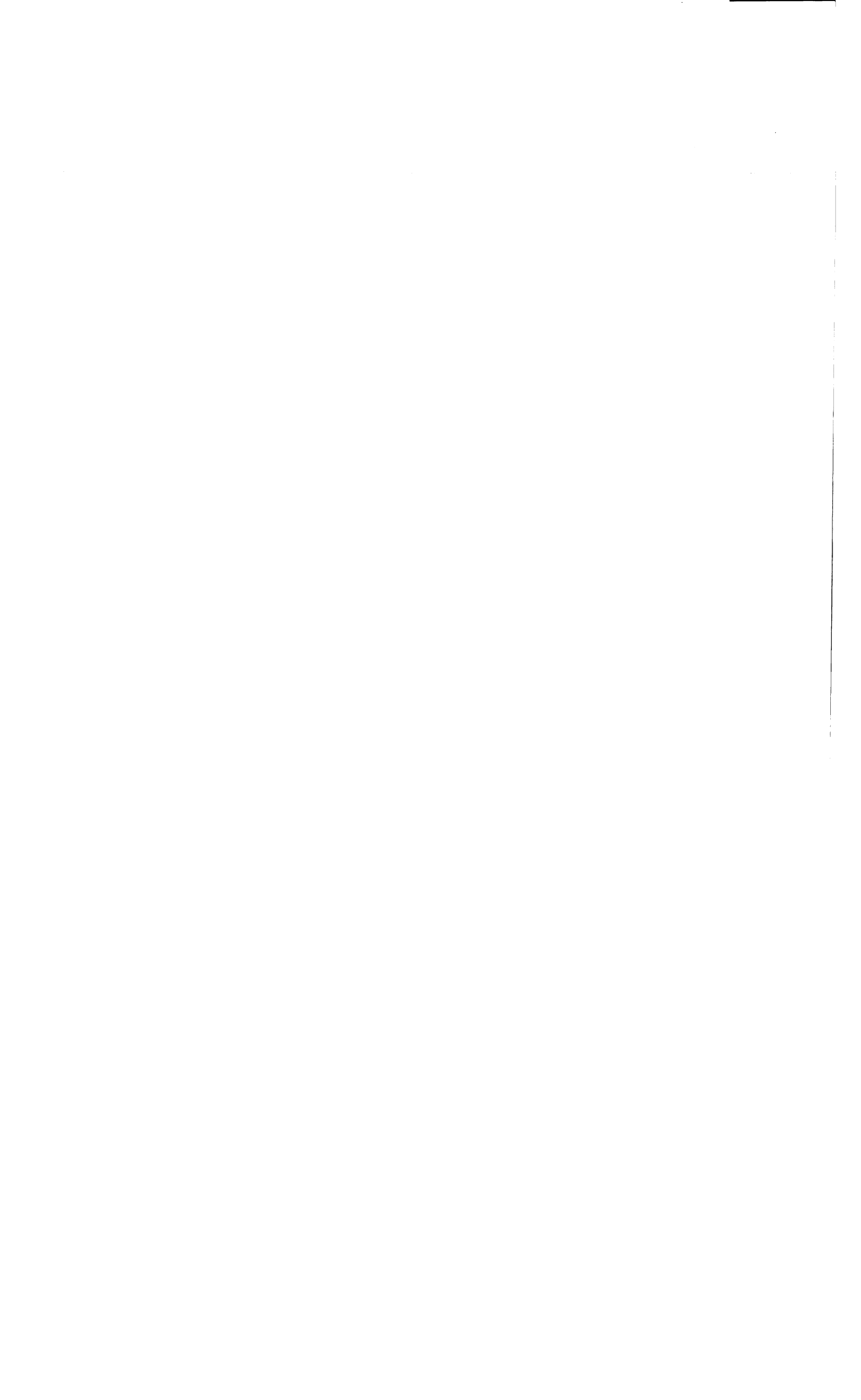
Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer cutting and overwriting is not allowed. (1x10=10)

1. Practice is made in
 - (a) Inductive method
 - (b) Deductive method
 - (c) Drill method
 - (d) Discussion method
2. The Socratic method is known as
 - (a) Lecture demonstration method
 - (b) Discussion method
 - (c) Inquiry method
 - (d) Question- Answer method
3. Which is not true about projects
 - (a) It is a purposeful activity
 - (b) It is proceeded in social environment
 - (c) It is accomplished in real life
 - (d) It is teacher centered activity
4. Which is not true about lesson plan
 - (a) It develops confidence
 - (b) It helps in orderly delivery of contents
 - (c) It is developed by students
 - (d) It saves from haphazard teaching
5. Which is not the advantage of team teaching
 - (a) Better utilization of resources
 - (b) Better planning
 - (c) Better use of teaching techniques
 - (d) Better financial benefits of teachers
6. Example of psychomotor domain is that student
 - (a) Demonstrates awareness to environmental pollution
 - (b) Performs an experiment
 - (c) Can compute results of two experiments
 - (d) Can narrate a story
7. Example of cognitive domain is
 - (a) Describe a topic
 - (b) Develop an X-ray film
 - (c) Type a letter
 - (d) Take responsibility for tool
8. The goal of teaching is
 - (a) To give information
 - (b) To involve pupils in activities
 - (c) To impart knowledge
 - (d) Desirable change in behavior
9. Students are passive in
 - (a) Project method
 - (b) Discovery method
 - (c) Lecture method
 - (d) Inquiry method
10. We move from specific to general in
 - (a) Inductive method
 - (b) Deductive method
 - (c) Drill method
 - (d) Discussion method





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Methods of Teaching Science in Elementary Schools
Course Code: EDE-373 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Answer the short questions.

(4x5=20)

1. What are the objectives of teaching science in elementary schools?
2. What are the safety measures used in laboratories?
3. Define the term "science".
4. Enlist merits and demerits of subjective type questions used in the subject of science.

Q.3. Answer the long questions.

(3x10=30)

1. Give details of any two methods of teaching of science at elementary level
2. Describe the types and importance of A.V aids in teaching of science at elementary level?
3. Describe the characteristics of good Lesson Plan



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Methods of Teaching English in Elementary Schools
Course Code: EDE-374 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Correct pronunciation and grammar are emphasized in :

- Total physical response
- The Direct Method
- The communicative approach
- Grammar Translation Method

2. The Direct method is fruitful for :

- Large classes
- Adult learners
- Developing writing
- Developing oracy

3. Dictation is basically a test of :

- Writing
- Listening
- Comprehension
- Composition

4. Role-play activities can improve :

- Listening
- Speaking
- Skimming
- Scanning

5. Summative evaluation comes at :

- Beginning of each topic
- Middle of a course
- End of a course
- End of each lesson

6. The phonetic is used to teach :

- Pronunciation
- Vocabulary
- Spellings
- Grammar

7. Language teaching begins with the :

- Spoken Language
- Reading comprehension
- Written form
- Grammatical rules

8. The role of the students remain passive in ;

- The Direct Method
- The Audio lingual Method
- Grammar Translation Method
- The Communicative Method

9. Students first listen then :

- Speak and write
- Speak and read
- Listen and speak
- Speak and read

10. English was formally introduced in the sub-continent:

- A lingua France
- An official language
- A national language
- A classical language



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Methods of Teaching English in Elementary Schools
Course Code: EDE-374 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers.

(5 x 4 = 20)

1. What do you understand by assessment and evaluation?
2. Enlist four principals of Audio-Lingual Method?
3. What do you suggest to increase reading speed?
4. Discuss the role of English in higher profession?
5. Describe an overhead projector as teaching aid?

Q.3. Give Brief Answer

(3 x 10 = 30)

- i. Is it important to plan lesson before class teaching? Give arguments in your answer and also draw a lesson –plan for teaching an English poem?
- ii. What do you know about the term Test? What are the important elements of a good test?
- iii. What are the techniques of vocabulary expansion?



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: School, Community and Teacher
Course Code: EDU-301 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Shorter paragraph in the main body _____
 - a) Academic
 - b) Non-academic
 - c) Formal
 - d) Non-formal
2. Stages of social development were defined by _____
 - a) Shankar Rao
 - b) Max Weber
 - c) Erik Erickson
 - d) John Dewey
3. School is functioning as _____
 - a) Community
 - b) Society
 - c) Culture
 - d) Industry
4. School has become _____ agency of socialization.
 - a) Secondary
 - b) Elementary
 - c) Higher Secondary
 - d) Primary
5. Dynamic means _____
 - a) Fun
 - b) Force
 - c) Action
 - d) None of these
6. An effective solution to most discipline problems is
 - a) A private discussion
 - b) Additional homework assignments
 - c) Public reprimand
 - d) Corporal punishment
7. Who is the strong developer of morals in young generation?
 - a) Teacher & Education
 - b) Family
 - c) Community
 - d) Media & Technology
8. A socially approved system of values, norms, and roles that exists to accomplish specific societal goals is called
 - a) Social Institution
 - b) Social Interaction
 - c) Social Control
 - d) Socialization
9. Methods used to organize classroom activities and instruction, creating a happy and productive learning environment are known as
 - a) Methods of loci
 - b) Classroom management
 - c) Cooperative learning
 - d) Lesson planning
10. Academic learning time is
 - a) Engaged time in which students show a high success rate
 - b) Time in which students are actively involved in subject
 - c) Allocated time with academic subjects
 - d) Time scheduled for an academic subject



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: School, Community and Teacher
Course Code: EDU-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give the short answers of these questions.

(5x4=20)

- Describe shortly clarity in academic and non-academic structures.
- Write down the definition of cultural diversity.
- What is group and group dynamics?
- Write down the definition of social institution and enlist names of social institutions.
- Write down four effects of school on community.

(5x4=20)

سوال نمبر 2: درج ذیل سوالات کے مختصر جواب تحریر کریں۔

- نصابی اور غیر نصابی Structures کی وضاحت کریں۔
- کلچرل تنوع کی تعریف تحریر کریں۔
- گروپ اور گروپ Dynamics سے کیا مراد ہے؟
- سوشل انٹر ایکشن سے کیا مراد ہے؟ تمام سوشل انسٹیٹیوشنز کے نام تحریر کریں۔
- سکول کے کیونٹی پر چار اثرات تحریر کریں۔

Q.3. Give long answers to the following questions.

(3x10=30)

- What is socialization? Write a note on the agencies of socialization.
- What is culture? Explain elements of Pakistani culture in detail.
- Write a note on the technological change and its impact on school and community.

(3x10=30)

سوال نمبر 3: درج ذیل سوالات کے تفصیلی جواب تحریر کریں۔

- سوشلائزیشن سے کیا مراد ہے؟ اس کی ایجنسیز پر نوٹ لکھیں۔
- کلچر سے کیا مراد ہے؟ اس کے Elements کی وضاحت پاکستانی کلچر کے حوالے سے تفصیل سے لکھیں۔
- ٹیکنالوجیکل تبدیلی پر نوٹ تحریر کریں اور اس کے سکول اور کیونٹی پر اثرات واضح کریں۔



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig. I

Roll No. in Words.

**PAPER: Pedagogy-I (Methods of Teachings
Related to Islamic Studies)**

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Course Code: EDU-302 Part-I (Compulsory)

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

سوال نمبر 1: درست جواب کا انتخاب کیجیے۔

- (1) اسلامی تہذیب کی بنیادیں ہیں۔
- الف: ارکانِ اسلام ب: عقائد اسلام ج: اخلاقِ حسنہ د: سب
- (2) بنیادی انسانی حقوق میں سب سے اہم ہے۔
- الف: جان کی حفاظت ب: مال کی حفاظت ج: عزت کی حفاظت د: امانت کی حفاظت
- (3) ایمان کا کمزور ترین درجہ ہے۔
- الف: جھوٹ بولنا ب: گالی دینا ج: برائی کو دل سے برا جانا د: جھگڑا کرنا
- (4) جن لوگوں نے مسلمانوں کو دین کی راہ میں نہ لڑائی کی، نہ گھروں سے نکالا۔ اللہ تعالیٰ ان سے انصاف کرنے کا حکم دیتا ہے۔ یہ حکم بیان ہوا ہے۔
- سورۃ.....
- الف: البقرہ میں ب: الاحزاب میں ج: الحجۃ میں د: الصف میں
- (5) اللہ کی راہ میں جہاد کرنے کا حکم سورۃ..... میں دیا گیا ہے۔
- الف: الاحزاب ب: الصف ج: الحجۃ د: الانعام
- (6) ابو البشر کس نبی کا لقب ہے۔
- الف: حضرت آدم ب: حضرت ابراہیم ج: حضرت نوح د: حضرت ایوب
- (7) فرد کی عملی تربیت کا تعلق کن مقاصد سے ہے۔
- الف: عمومی مقاصد ب: عملی مقاصد ج: استثنائی مقاصد د: عملی مہارتیں
- (8) کنڈرگارٹن طریقہ تدریس کا بانی تھا۔
- الف: جان ڈیوی ب: فروبل ج: روسو د: پستالوزی
- (9) تدریس اسلامیات کے خصوصی مقاصد ہیں۔
- الف: دو ب: تین ج: چار د: پانچ
- (10) اسلام کے لغوی معنی ہیں۔
- الف: سلامتی ب: عیب سے پاک ج: فرمانبرداری د: تمام



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Pedagogy-I (Methods of Teachings Related to Islamic Studies)

Course Code: EDU-302 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

(10×2=20)

سوال نمبر-2: مندرجہ ذیل سوالات کے مختصر جوابات تحریر کریں۔

1- غیر مسلموں سے تعلقات اسلامی تعلیمات کی روشنی میں تحریر کریں۔

2- توحید کا مفہوم، مختصر و جامع تحریر کریں۔

3- حدیث مکمل کریں: كَلِّمُوا رَاعٍ وَ كَلِّمُوا مَسْنُونًا۔

4- اسلام کی بنیاد کن پانچ ستونوں پر رکھی گئی ہے۔ حدیث کا ترجمہ تحریر کریں۔

5- جو کوئی برائی کو دیکھے، اسے کیا حکم ہے؟ فرمان نبوی ﷺ کی روشنی میں تحریر کریں۔

6- تدریس اسلامیات کے عمومی مقاصد تحریر کریں۔

7- ثانوی سطح پر اسلامیات کی نصاب سازی کے اصول تحریر کریں۔

8- قرآن نے دینی احکامات کے سلسلے میں کون کون سے بنیادی اصول دیئے ہیں؟

9- دین اسلام کی کوئی سی چار خصوصیات تحریر کریں۔

10- اسلامی نظام تعلیم کی کوئی سی چار خصوصیات تحریر کریں۔

(10)

سوال نمبر-3: درج ذیل آیت کا ترجمہ اور تشریح جامع تحریر کریں:

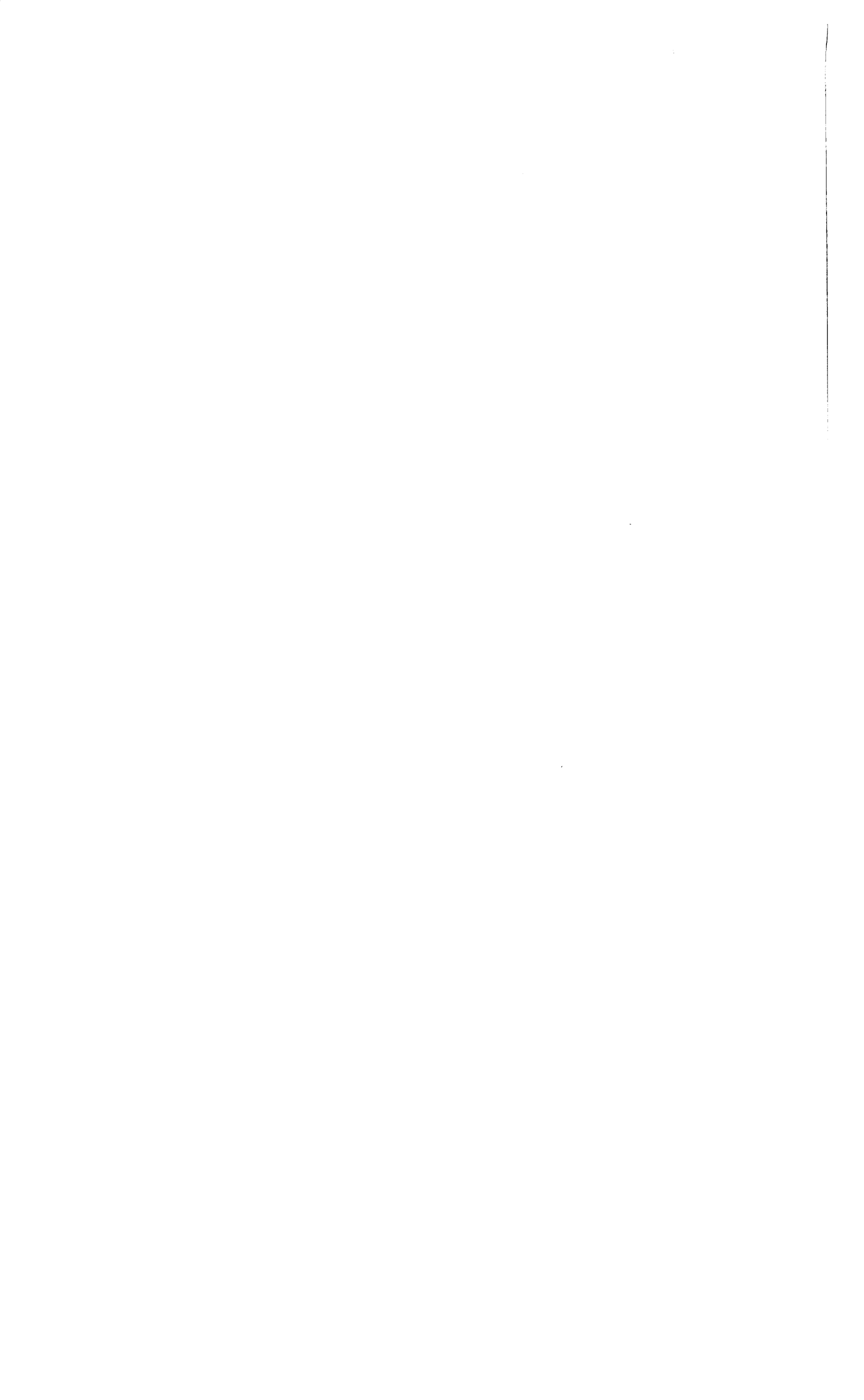
أَمِنَ الرَّسُولُ بِمَا أُنزِلَ إِلَيْهِ مِنْ رَبِّهِ وَالْمُؤْمِنُونَ كُلٌّ آمِنَ بِاللَّهِ وَمَلَائِكَتِهِ وَكُتُبِهِ وَرُسُلِهِ لَا نُفَرِّقُ بَيْنَ أَحَدٍ مِنْ رُسُلِهِ وَقَالُوا سَمِعْنَا وَأَطَعْنَا غُفْرَانَكَ رَبَّنَا وَإِلَيْكَ الْمَصِيرُ
(سورة البقره: 285)

(10)

سوال نمبر-4: اسلامی نظام تعلیم میں حکمت تدریس کی اہمیت واضح کریں۔

(10)

سوال نمبر-5: معلم اسلامیات کے اوصاف تحریر کریں۔





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Pedagogy-II (Methods of Teachings Related to Pak Studies)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Course Code: EDU-303 Part-I (Compulsory)

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q1: Encircle the correct answers of the following multiple choice questions. 1x10=10

i Curriculum is the reservoir of _____

- a Knowledge b Civilization c Ethics d Fundamentals

ii Group Behavior is called _____

- a Culture b Civilization c Norms d Ethics

iii Inter Linked Subjects are taught under the same umbrella.

- a Topical approach b Theoretical Approach c Unified Approach d None of These

iv Pakistan studies was introduced as an compulsory subject in

- a 1950 b 1960 c 1970 d 1980

v It belongs to the Natural Resources _____

- a Irrigation System b Minerals c Trade d Means of Communication

vi Articulation comes in the category of _____ domain.

- a Cognitive b Affective c Psychomotor d Knowledge

vii Topical approach is adopted with reference to.

- a Geography b History c Religion d Social Studies

viii Affective objectives are derived form.

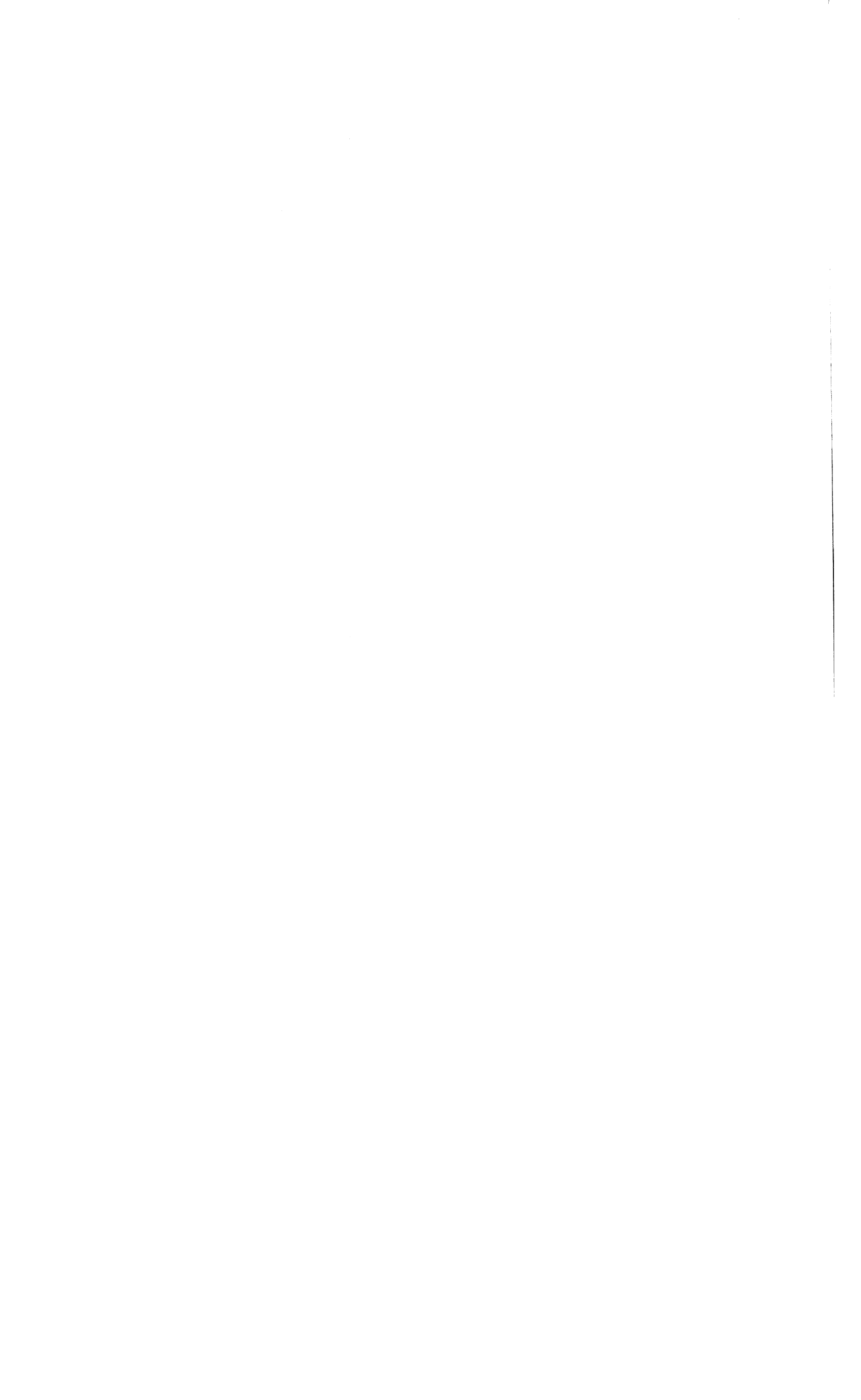
- A Information b Skills c Performance d Attitude

ix Social Studies is a systematic study of.

- A Group Behavior b Social Sciences c Human Behavior d None of these

x Study of Human behavior is called

- a Sociology b History c Pakistan Studies d Social Studies





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Pedagogy-II (Methods of Teachings Related to Pak Studies)

Course Code: EDU-303 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2: Write short answers of the following questions

5x4=20

سوال نمبر 2: درج ذیل سوالات کے مختصر جواب تحریر کریں۔

i Write briefly the relation of Pakistan Studies with Social Studies.

i مطالعہ پاکستان کے سوشل سٹڈیز کے ساتھ تعلق کو مختصر طور پر تحریر کریں۔

ii Critically analyze the curriculum of Pakistan Studies.

ii مطالعہ پاکستان کے نصاب کا تنقیدی جائزہ لیں۔

iii Describe the basic elements of Pakistan Studies.

iii مطالعہ پاکستان کے بنیادی عناصر کی وضاحت کریں۔

iv Define geography. Discuss its relation with Pakistan Studies.

iv جغرافیہ کی تعریف کریں۔ نیز مطالعہ پاکستان کے ساتھ اس کے تعلق پر بحث کریں۔

Q3: Write detailed answers of the following questions:

10x3=30

سوال نمبر 3: مندرجہ ذیل سوالات کے تفصیلی جواب تحریر کریں۔

i Describe the major principals for the selection of content of Pakistan Studies.

i مطالعہ پاکستان کے content کا انتخاب کرنے کے حوالہ سے اہم اصولوں کی وضاحت کریں۔

ii Discuss in detail the role of Pakistan studies teacher for national integration.

ii قومی یکجہتی کے لیے مطالعہ پاکستان کے استاد کے کردار پر تفصیلی بحث کریں۔

iii Write the importance of Pakistan Studies in current scenario.

iii موجودہ حالات میں مطالعہ پاکستان کی اہمیت تحریر کریں۔



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Educational Statistics
Course Code: EDU-318 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2: Solve The Following Questions. Each Question Carry Two Marks. (10×2=20)

- i. Describe Skewness with the help of examples.
- ii. Compute the range of the data 2, 5, 8, 15, 30.
- iii. Given $\sum X = 180$, $\sum X^2 = 6660$ & $N=5$. Find Variance.
- iv. Find the Median of the values 4,5,6,8,11,12,14.
- v. Compute Mode of the data 2,2,2,3,3,3,2,3,3,4
- vi. What is meant by independent sample t- Test and when it is used?
- vii. What is meant by Statistical Hypothesis? Give examples.
- viii. What is mean by dispersion? Briefly describe its types.
- ix. In a moderate skewed distribution mean = 25, and mode = 28. Find the value of median.
- x. Write down the properties of variance.

SECTION II

Solve the Following Questions. (3×10=30)

Q. 3: The following data show Kilowatt Hours of electricity used in one month by residential consumers in certain locality of Lahore. Estimate the Mean and Median. (5+5)

40, 32, 65, 0, 11, 28, 24, 31, 15, 5, 11, 0, 6, 14, 22, 47, 23, 27, 19, 7, 15, 32, 0, 23, 36, 45, 26, 31, 30, 25, 52, 50, 42, 34, 93, 53, 80, 74, 38, 69, 61, 54, 37, 50, 31, 39, 44, 68, 50, 55.

Q.4: The following table gives the ages of husbands and their wives at the time of marriage. Find the relationship between their ages by calculating the Pearson Product Moment correlation coefficient. Also write your decision about the relationship between ages. (10)

Husband's age	28	27	28	23	29	30	36	35	33	31
Wife's age	27	20	22	18	21	29	29	28	29	27

Q.5: Following is the data of monthly expenditures of families in two towns. Compute Mean, Standard Deviation and Co-efficient of Variation for the expenditures to compare the results. (4+4+2)

Expenditure (Thousand Rupees)	Number of Families	
	Town A	Town B
21 - 30	3	2
31 - 40	61	14
41 - 50	132	20
51 - 60	153	27
61 - 70	140	28
71 - 80	51	7
81 - 90	2	2





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Educational Statistics
Course Code: EDU-318 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

i) Which of the following measures is affected most by extreme values?

- (a) Median (b) Mean (c) Mode (d) Frequencies

ii) The blood pressure of a person is

- (a) Continuous variable (b) Discrete variable (c) Qualitative variable (d) None of these

iii) What kind of average is suitable for open end classes?

- (a) Arithmetic mean (b) Median (c) Geometric Mean (d) Harmonic mean

iv) First hand collected data is called _____.

- (a) Secondary data (b) Primary data (c) Official data (d) Semi-official data

v) For a normal distribution the measure of kurtosis equals to

- (a) Zero (b) 3 (c) Positive number (d) Negative number

vi) Mr. Rizwan calculated a correlation coefficient of -0.96. Which of the following reflects the best interpretation of this?

- (a) Strong relationship (b) Moderate relationship (c) Weak relationship (d) No relationship

vii) Which of the following is not a measure of dispersion?

- (a) Range (b) Standard deviation (c) Second Quartile (d) Coefficient of variation

viii) If in a normal distribution $\mu = 10$ and $\sigma^2 = 25$ then the Mode is _____.

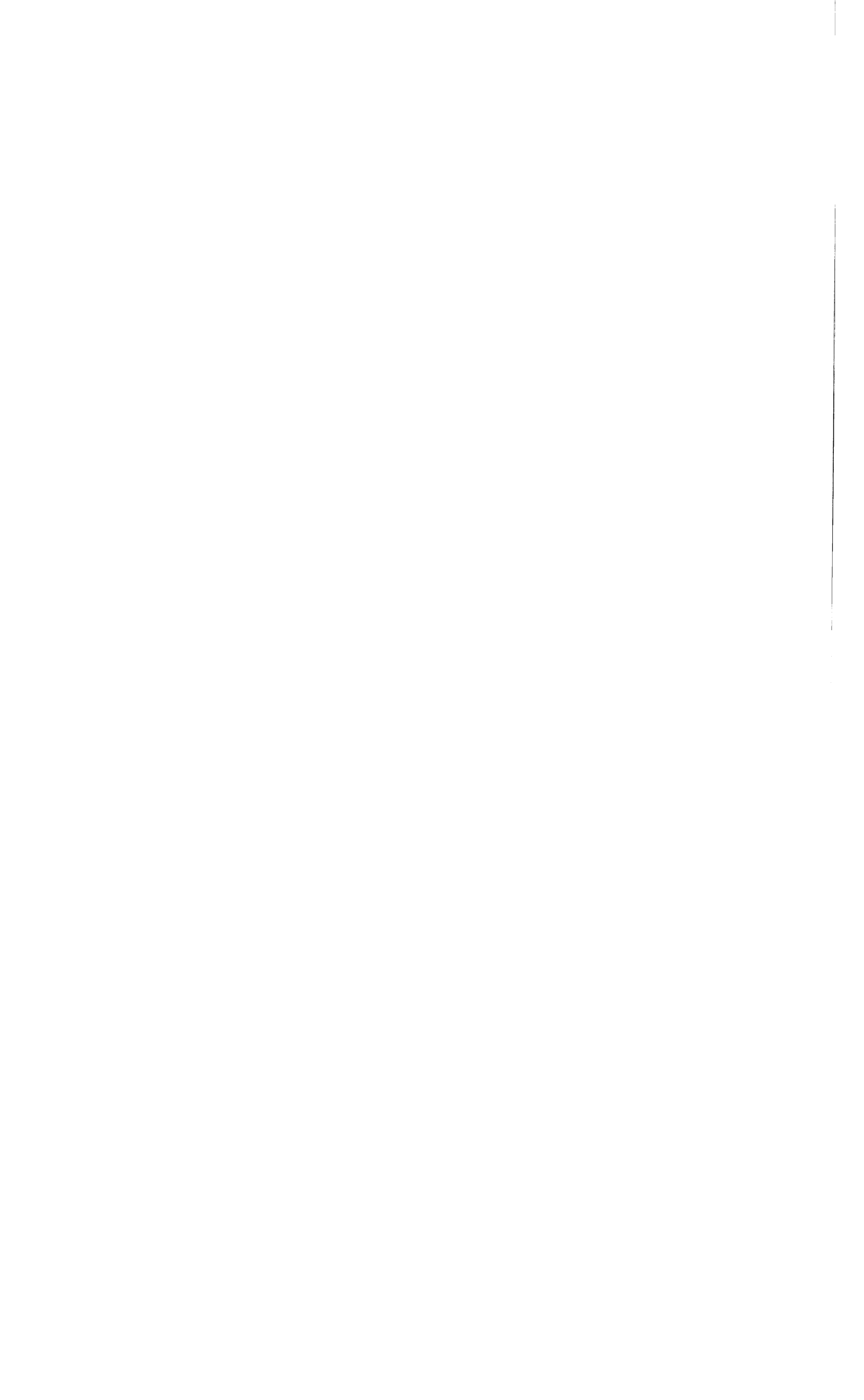
- (a) 05 (b) 10 (c) 25 (d) 50

ix) The correlation coefficient is _____ of the two regression coefficients.

- (a) Arithmetic Mean (b) Geometric Mean (c) Harmonic Mean (d) Median

x) The correlation coefficient lies between

- (a) -1 to 0 (b) 0 to 1 (c) -1 to +1 (d) both (a) and (c)





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Instructional Technology
Course Code: ED-322 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer cutting and overwriting is not allowed. (1x10=10)

1. Aims are always :
 - a. Small level
 - b. National level
 - c. Institutional level
 - d. Class room level
2. Technology is a :
 - a. Greek word
 - b. Latin word
 - c. English word
 - d. Italian word
3. Instructional technology is the of:
 - a. Practice and design
 - b. Development and utilization
 - c. Management and evaluation
 - d. All of the above
4. Adoption of the written word was explored in:
 - a. 2nd revolution
 - b. First revolution
 - c. 3rd revolution
 - d. 4th revolution
5. A plan of action or policy designed to achieve a major or overall aim is called:
 - a. Plan
 - b. Action
 - c. Strategy
 - d. Policy
6. Attainment of educational objectives are called:
 - a. Input
 - b. Encoding
 - c. Output
 - d. environment
7. Continuous attraction with the environment is called :
 - a. Open system
 - b. Closed system
 - c. Social system
 - d. Education system
8. Teacher role is active in:
 - a. Passive
 - b. Active and passive
 - c. Active
 - d. None of these
9. A type of communication that relates with the body language and gestures are assured is namely as:
 - a. Oral communication
 - b. Verbal communication
 - c. Language Method
 - d. None –verbal communication
10. Diffusion is the process through which new ideas products are spread through:
 - a. Transformation
 - b. Education
 - c. Administration
 - d. Communication



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Instructional Technology

Course Code: ED-322 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers.

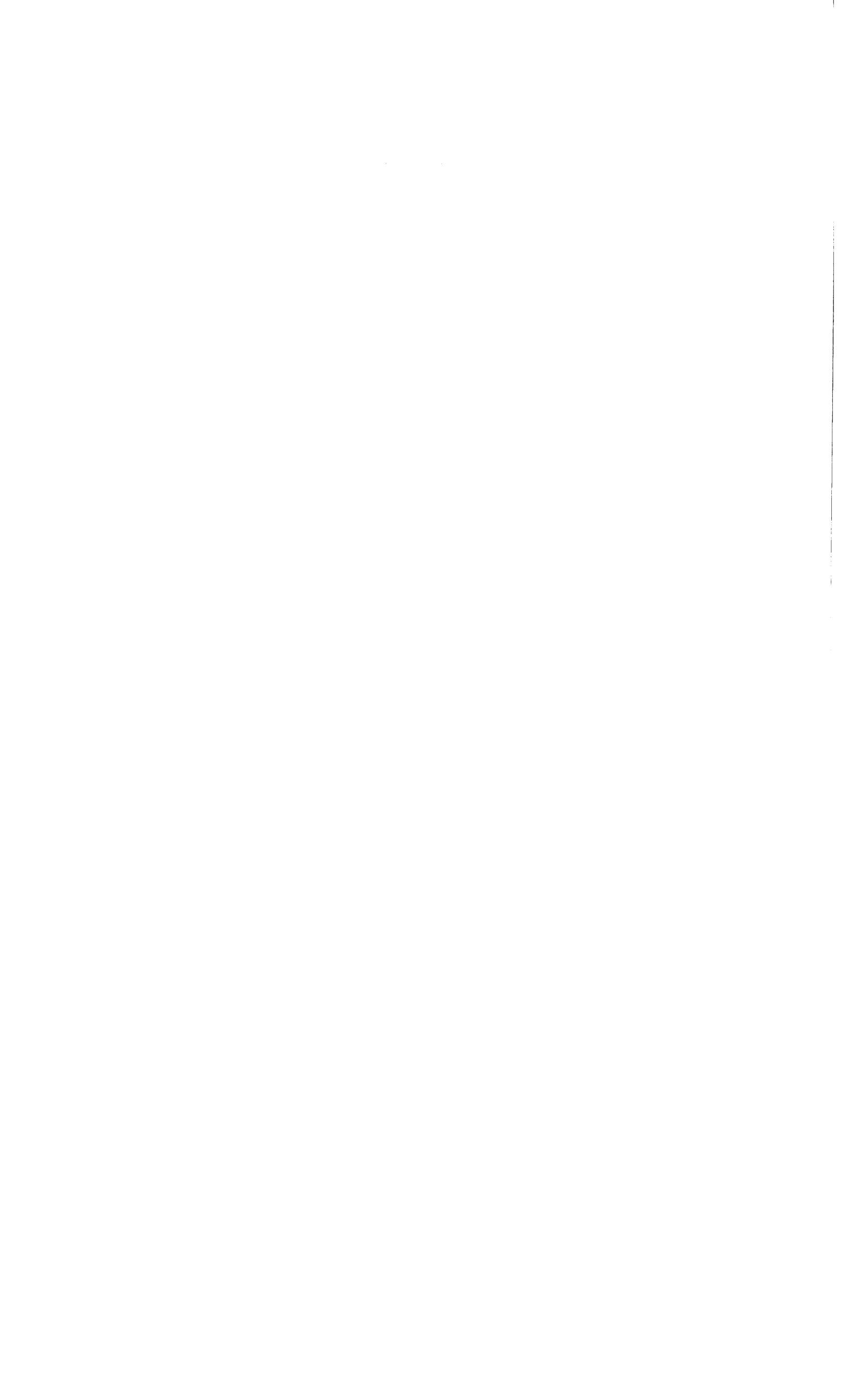
(5x4=20)

1. Differentiate between educational technology and instructional technology with examples?
2. Write down the characteristics of good system?
3. Enlist the elements of communication?
4. What are the stages of diffusion theory?
5. Describe briefly student-centered approach?

Q.3. Answer the following questions in detail.

(3x10=30)

1. How instructional technology is enhancing teaching learning process in Pakistan education system?
2. Define media. Describe the major types of media which can be used in instructional technology? Also write down the advantages and disadvantages of media?
3. Describe in detail Keller plan approach?





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Criticism and Theory-I
Course Code: ENG-301 A

MAX. TIME: 3 Hrs.
MAX. MARKS: 60

Section I

5x3= 15

Give Short Answers to these Questions:

- Q.1. Explain Aristotle's idea of ideal plot.
- Q.2. Discuss various kind of poetry in Sidney.
- Q.3. Write a note on Arnold's idea of culture.

Section 2

15x3= 45

Attempt the following questions.

- Q.4. Write a detailed note on the concept of ideal tragic hero as theorized by Aristotle.
- Q.5. Discuss Wordsworth's theorization of poetic diction.
- Q.6. Discuss the main feature of religion and literature in T.S. Eliot.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Literary Criticism

Course Code: ENG-301

MAX. TIME: 3 Hrs.

MAX. MARKS: 60

Section I

5x3= 15

Give Short Answers to these Questions:

- Q.1. What is simple and complex plot in Aristotle?
- Q.2. Discuss Sidney's contribution to English criticism.
- Q.3. Write a note on Johnson's main argument in "Preface to Shakespeare".

Section 2

15x3= 45

Attempt the following questions.

- Q.4. Is Sydney apologetic about poetry?
- Q.5. Discuss the idea of poetic diction in Wordsworth.
- Q.6. Discuss the main feature of religion and literature in T.S. Eliot.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Literary Criticism

Course Code: ENG-301

MAX. TIME: 3 Hrs.

MAX. MARKS: 60

Section I

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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Poetry (14th to 18th Century)

Course Code: ENG-302

MAX. TIME: 3 Hrs.

MAX. MARKS: 60

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q#1: Answer The Following Short Questions:-

A. Give a character sketch of 'Knight ' in the Prologue. (5)

B. What is the subject of 'Paradise Lost'? (5)

C. Define 'Allegory'? (5)

Q#2: What makes Donne a metaphysical poet? Discuss with reference to the reading of the poems in your course? 15

Q#3: Discuss Milton's style in 'Paradise Lost'? 15

Q#4: Chaucer's technique of characterization in the Prologue differs from character to character. Discuss? 15



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Poetry (14th to 18th Century)

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MAX. TIME: 3 Hrs.

MAX. MARKS: 60

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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Novel (18th & 19th Century)

Course Code: ENG-303

MAX. TIME: 3 Hrs.

MAX. MARKS: 60

SECTION- I

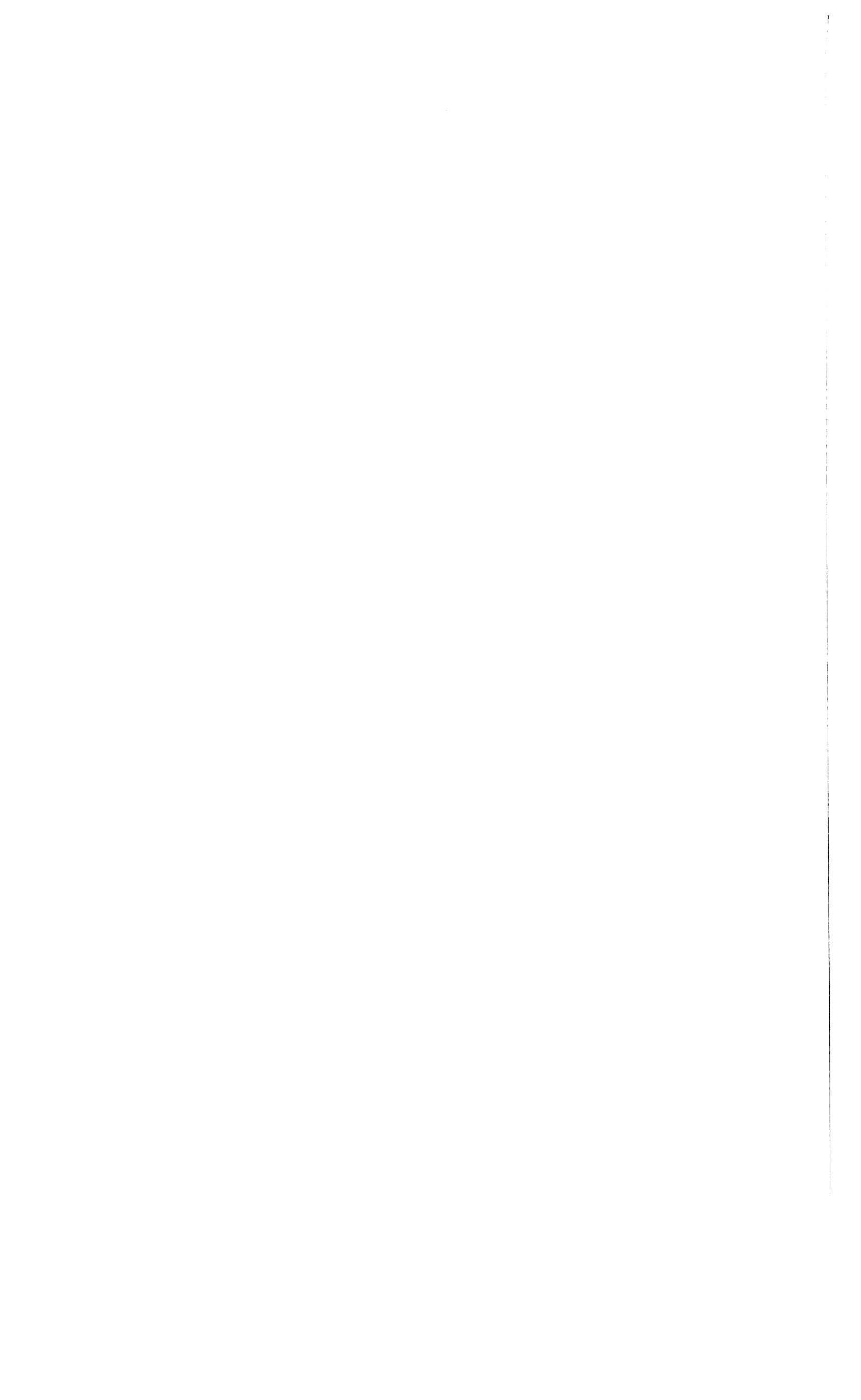
5+5+5

- Q.1 What is the setting of Jane Austen's "Emma"?
- Q.2 How does Victorian era tie into the setting of "Hard Times"?
- Q.3 Give two examples of the technique called 'foreshadowing' in "Tess of d'Urbervilles".

Section 2

15+15+15

- Q.4 Discuss the function of 'digressions' in "Joseph Andrews".
- Q.5 Which examples show the themes of love and marriage in "Emma" by Jane Austen?
- Q.6 How much is Tess to blame for what happens to her in the novel, "Tess of d'Urbervilles"?





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Novel (18th & 19th Century)
Course Code: ENG-303

MAX. TIME: 3 Hrs.
MAX. MARKS: 60

SECTION- I

5+5+5

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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Journalistic Discourse
Course Code: ENG-304

MAX. TIME: 3 Hrs.
MAX. MARKS: 60

Note: Attempt all questions

Section One

Q.1 Briefly answer the followings

- a. Write a brief note on **Discourse Analysis** as a field of study. 5
- b. Define two ways of approaching language as **Contextual links** and **Formal links**.? 5
- c. What are the stylistic features or characteristics of **Journalistic writing**? 5

Section Two

Q.2 Critically analyze Eqbal Ahmed's essay *Between Past and Future* thematically and stylistically. 15

Q.3. William Dalrymple's journalistic piece of writing *Blood on the Tracks* is replete with political and historical images. Discuss them by their relevance with the theme of the essay. 15

Q.4 Analyze the key features of Robert Frisk's journalistic writing style or his argumentative style after an analysis of his article *The Ship that Stands Upright at the Bottom of the Sea* you have studied in your syllabus. 15



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Journalistic Discourse

Course Code: ENG-304

MAX. TIME: 3 Hrs.

MAX. MARKS: 60

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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Sociolinguistics

Course Code: ENG-305

MAX. TIME: 3 Hrs.

MAX. MARKS: 60

Q1. Write the short answers for the following questions. (15)

1. Briefly discuss the VARIATIONS IN LANGUAGE USE in speech community. (5)
2. Discuss the differences in DIALECT and ACCENT with examples. (5)
3. Define and explain SAPIR-WHORF HYPOTHESIS. (5)

Q2. Write the long answers for the following questions. (45)

1. Can language play an important role in culture development and thought formation? Support your arguments with examples. (15)
2. What is the difference between CODE MIXING and CODE SWITCHING? Write a comprehensive note on all situations where a BILINGUAL prefer code switching or code mixing. (15)
3. Discuss the causes and effects of LANGUAGE ATTITUDES on multilingual society.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Sociolinguistics

Course Code: ENG-305

MAX. TIME: 3 Hrs.

MAX. MARKS: 60

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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Visionary Discourse
Course Code: ENG-306

MAX. TIME: 3 Hrs.
MAX. MARKS: 60

NOTE: Attempt ALL questions in Section I and Section II. Be relevant.

SECTION-I

5x3=15

Answer the following short questions. Each question carries five marks.

- Q.1 Restate the clauses of the truce of Hudaibiya.
- Q.2 What perspective does Mandela take of the apartheid in his Release speech?
- Q.3 What vision does Quaid-e-Azam present for the State Bank of Pakistan in his Inaugural Address?

SECTION-II

15X3=45

Give Detailed Answers to the following. Each question carries fifteen marks.

- Q. 1 What rhetorical techniques have been used by Allama Iqbal in his Allahabad Address?
- Q.2 “Abraham Lincoln's carefully crafted Great Gettysburg Address came to be seen as one of the greatest and most influential statements of American national purpose”. Critically analyze the statement.
- Q.3 What kind of stylistics techniques are used in the last five Letters of Allama Iqbal to Mr. Jinnah?





UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Visionary Discourse
Course Code: ENG-306

MAX. TIME: 3 Hrs.
MAX. MARKS: 60

NOTE: Attempt ALL questions in Section I and Section II. Be relevant.

SECTION-I

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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Analytical Study of English Literature

Course Code: ENG-321 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Write short answers of the following questions.

(5x4=20)

1. "Lord of the flies" revolves around the role of evil as an innate force. Discuss briefly
2. How far do you think that Heming way has explored the theme of "Lost Generation" after reading his novel "The Sun also rises"
3. What are the major weapons employed against family by Maryam Jamila?
4. Explain the conception of God in the light of Iqbal's lectures "The conception of God and meaning of prayer"
5. What is the dilemma of modern man by Iqbal in 'Is Religion Possible'?

Q.3. Write detailed answers of the following questions.

(3x10=30)

1. Draw a character a sketch of Jake Barnes in the novel 'The Sun Also Rises'.
2. Give brief analysis of the following symbols. (any two)
(a) Conch Shell (b) Piggy's glasses (c) Fire (d) Lord of the Flies
3. Define Modernism. Name various labels of Modernism as described by Maryam Jamila.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Analytical Study of English Literature
Course Code: ENG-321 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (i) Conch is the symbol of
- A. rescue
 - B. hope
 - C. authority
- (ii) Who is the leader of choir?
- A. Jack
 - B. Ralph
 - C. Piggy
- (iii) Kill the pig, cut her throat spill his blood (Bash her in). It was chanted by.....?
- A. Roger
 - B. Jack
 - C. Group of hunters
- (iv) At last the boys were secured by a
- A. Leader
 - B. Naval officer
 - C. Pilot
- (v) Lord of the flies was actually a
- A. Sow's head
 - B. Beast
 - C. Force of evil
- (vi) 'The Sun also Rises' is a
- A. Comedy
 - B. Tragedy-comedy
 - C. Tragic novel
- (vii) Brett is the symbol of
- A. Modernism
 - B. Love
 - C. Decadence
- (viii) Who is the author of The Sun also Rises?
- A. Joseph Conrad
 - B. Earnest Heming
 - C. William Golding
- (ix) Robert Cohn came of a
- A. Christian family
 - B. Jewish family
 - C. Poor family
- (x) Jake Barnes is a
- A. Code hero
 - B. Heming way hero
 - C. Antagonist



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Research Methodology-I

Course Code: GS-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(5 x 4 = 20)

1. Distinguish between Qualitative and Quantitative Research.
2. Explain the need of review of related literature in conducting a research.
3. What is the difference between Independent variable and Dependent variable?
4. Write down the different rating scales used in Quantitative Research.
5. Define Validity and its importance in research study.

Q.3. Questions with brief answers.

(3 x 10 = 30)

1. Define Probability Sampling. Explain its types.
2. Explain the types of Hypotheses.
3. Write a detailed note on Survey Research.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Research Methodology-I
Course Code: GS-301 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (10x1=10)

1. Which of the following coefficients of correlation indicates the strongest relationship between two sets of variables?
 - a) -0.98
 - b) 0.90
 - c) 0.00
 - d) 1.20

2. The variable in which change occurs due to change in some other variable is called:
 - a) independent
 - b) dependent
 - c) extraneous
 - d) moderating

3. There will be NO significant difference between scores on a measure of achievement of high and low anxious students; is a hypothesis written in:
 - a. directional form
 - b. non directional form
 - c. null form
 - d. objective form

4. A rating scale in which antonyms are used at the two ends of the scale is called:
 - a) likert scale
 - b) bipolar scale
 - c) semantic differential scale
 - d) fixed sum scale

5. Piloting of a questionnaire should be done on the:
 - a) sample of study
 - b) sample from another population
 - c) small sample from the sample of the study
 - d) small sample from the population of the study

P.T.O.

6. Which one of the following technique can be helpful in developing good rapport with the interviewee:
- funnelling technique
 - face to face interview
 - group interview
 - telephonic interview
7. "The female students will obtain high scores than the male students". The statement is an example of:
- null hypothesis
 - research hypothesis
 - non-directional hypothesis
 - none of above
8. A researcher is interested to know the relationship between the scores on entrance test and the achievement tests. This is an example of:
- descriptive research
 - survey research
 - correlation research
 - experimental research
9. When a null hypothesis is rejected, which one of the following hypothesis is essentially accepted:
- Directional hypothesis
 - non directional hypothesis
 - research hypothesis
 - none
10. The analysis of data already collected by other researcher is referred to as:
- surveying the literature
 - use of documents
 - secondary analysis
 - replication



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Gender and Human Rights

Course Code: GS-302 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(4 x 5 = 20)

(4x5=20)

سوال نمبر 2: درج ذیل سوالات کے مختصر جوابات دیں۔

i. Write down the definition and importance of Fundamental Human Rights.

i. بنیادی انسانی حقوق کی تعریف اور اہمیت لکھیں۔

ii. What UDHR says about Gender Equality?

ii. صنعتی مساوات سے متعلق UDHR کا نقطہ نظر واضح کریں۔

iii. What is the role of "State Report" in monitoring and implementing Human Rights?

iii. بنیادی انسانی حقوق کے نفاذ اور جانچ پڑتال کے نظام میں "ریاست کی طرف سے جمع کرائی جانے والی رپورٹ" کا کیا کردار ہے؟

iv. Define discrimination with special reference to CEDAW.

iv. CEDAW میں دی گئی امتیازی سلوک کی تعریف بیان کریں۔

Questions with brief answers.

(3 x 10 = 30)

(3x10=30)

درج ذیل سوالات کے جامع جوابات دیں۔

Q.3. Write a detailed note on the Fundamental rights in the constitution of Pakistan and their importance regarding Gender Equality.

سوال نمبر 3: پاکستان کے آئین میں موجود بنیادی انسانی حقوق کا تفصیلی جائزہ لیں اور صنعتی مساوات سے متعلق ان کی اہمیت پر بھی روشنی ڈالیں۔

Q.4. Write down the role of state and civil society in the protection of Human Rights.

سوال نمبر 4: انسانی حقوق کے تحفظ میں مملکت اور سماجی تنظیموں کے کردار کا تفصیلی جائزہ پیش کریں۔

Q.5. Draw a brief analysis of situation of Human Rights and its violations in Pakistan with special reference to women.

سوال نمبر 5: پاکستان میں انسانی حقوق اور ان کی پامالی سے متعلق صورتحال کا جائزہ خواتین کے تناظر میں پیش کریں۔



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Gender and Human Rights
Course Code: GS-302 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (10x1=10)
سوال نمبر 1: صحیح جواب کے گرد دائرہ لگائیں۔ (10X1=10)

- i. Universal Declaration of Human Rights (UDHR) was adopted in:
(a) 1948 (b) 1950 (c) 1955 (d) 1945
انسانی حقوق کا آفاقی اعلامیہ UDHR کب بنا؟ .i
- ii. UDHR was adopted by:
(a) World Bank (b) IMF (c) United Nation (d) World Economic Forum
UDHR کس ادارے نے بنایا؟ .ii
- iii. The United Nation charter sets out _____ main purposes.
(a) 6 (b) 10 (c) 4 (d) 2
اقوام متحدہ کا چارٹر _____ بنیادی مقاصد تحریر کرتا ہے۔ .iii
- iv. UDHR has total _____ articles.
(a) 15 (b) 30 (c) 25 (d) 10
UDHR کے کل آرٹیکلز کی تعداد ہے۔ .iv
- v. CEDAW in its original document does not mention.
(a) Domestic Violence (b) Rural Women
(c) Discrimination (d) Equality
CEDAW درج ذیل میں سے کسی مسئلہ پر بات نہیں کرتا؟ .v
- vi. CEDAW was adopted by UN in:
(a) 1980 (b) 1975 (c) 1979 (d) 1970
CEDAW کو اقوام متحدہ نے کب اختیار کیا؟ .vi
- vii. Which document was adopted in Fourth World Conference on woman?
(a) CEDAW (b) Beijing Platform for Action
(c) Both A & B (d) None of these
خواتین کے حقوق پر ہونے والی چوتھی ورلڈ کانفرنس میں کون سی دستاویز اختیار کی گئی؟ .vii
- viii. 12 critical areas of concern as identified in Fourth World Conference on women were:
(a) Women and Health (b) Women and the Media
(c) Violence against women (d) A, B & C
خواتین کے حقوق پر ہونے والی چوتھی ورلڈ کانفرنس میں انتہائی توجہ کے قابل بارہ پہلوؤں میں شامل ہیں۔ .viii
- ix. In Pakistan which document articles fundamental Human Rights?
(a) Constitution of Pakistan (b) Pakistan Penal Code
(c) Hudood Ordinance (d) None of the above
پاکستان میں کون سے قانون میں بنیادی انسانی حقوق درج ہیں؟ .ix
- x. CEDAW has total _____ articles.
(a) 20 (b) 30 (c) 30 (d) 40
خواتین سے متعلق ہر قسم کے امتیازی سلوک کے خاتمے کی دستاویز میں موجود کل آرٹیکلز کی تعداد ہے۔ .x



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Gender and Environment
Course Code: GS-303 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Write short answers of the following questions.

(5 x 4 = 20)

- i. Green Revolution
- ii. Ecofeminism
- iii. Food Security & Gender
- iv. Urbanization
- v. Sustainable Development

Q.3. Write detailed answers of the following questions.

(3 x 10 = 30)

- i. Write a detailed essay on “Relationship between Gender & Environment”.
- ii. Pen down the current gender & environmental issues in Pakistan.
- iii. What are the effects of environmental degradation on women?



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Statistics in Social Sciences

Course Code: GS-305 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Write short answers of the following questions.

(10 x 2 = 20)

i). Differentiate between the term sampling and Probability.	ii) Write the steps that you would take to construct a frequency distribution?
iii) What is statistical inference?	iv) Explain testing of hypotheses.
v) Differentiate between sampling distribution and normal distribution.	vi) Differentiate between simple events and combined events.
vii) Explain role of probability in inferential statistics.	viii) Differentiate between null and alternative hypothesis
ix) Differentiate between simple and multiple regressions.	x) Write about the purpose of z-score in a distribution.

Section-III (30)

Q.3. Give a brief account on parametric and non-parametric test used in research? $6 \times 1 = 6$

Q.4. Change the following statement into suitable form of hypotheses (i.e. null hypotheses, alternative hypotheses, directional and non-directional hypotheses) $2+2+2+2=8$

“Is age at marriage associated with divorce?”

Q.5. Differentiate between one sample t-test and two sample t-test also explain confidence interval for means. $4+4+2=8$

Q.6. In which situations a researcher may want to use i) Chi-square test ii) Mann- Whitney U test in a research study? $4+4=8$



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Gender and Politics
Course Code: GS-306 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer cutting and overwriting is not allowed. (1x10=10)

1. Direct democracy is the system in which

- a) Citizen choose their representatives in free and fair elections
- b) Citizen are allowed to debate with their representatives in open public meetings
- c) Citizen present themselves in the decision making process.
- d) Senior political leaders are known as Directors.

2. The SAARC decade for the girl was

- a) 1961-1970
- b) 1970-1980
- c) 1075-85
- d) 1991-2000

3. The first ever women right convention's known as Seneca Fall Convention was held in:

- a) 1888
- b) 1848
- c) 1828
- d) 1808

4. GPI is a socioeconomic index usually designed to measure the relative access to education of males and females

- a) General population index
- b) Gender primary index
- c) Gap preparatory influx
- d) Gender parity index

5. The United Nations Entity for Gender Equality and the Empowerment of Women is also known as

- a) UN women
- b) UNIFM
- c) INSTRAW
- d) UNDG

P.T.O.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Principles of Management (SS)
Course Code: IT-302 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q1. Choose the correct Answer.

(10x1=10)

1) Bureaucracy is considered most efficient system because

A: It insists in rules

B: It prescribes informal relationships

C: It emphasizes on human elements in the organization

D: It provides more freedom to action

2) Set of the attitudes, experiences, beliefs and values of an organization is called organization's -----.

A: Strength

B: Environment

C: Culture

D: Resources

3) Which of the following is NOT an assumption of Theory X:

A: People do not like to work

B: Work is a natural part of their lives

C: People avoid responsibility

D: Managers have to control and coerce employees

4) Which element of structure refers to the continuous line of authority that extends from the highest organizational levels to the lowest and clarifies who reports to whom?

A: Work Specialization

B: Span of Control

C: Centralization

D: Unity of Command

5) ----- means only one company became history which is the acquired company while the acquiring company remains.

A: Joint Venture

B: Merger

C: Acquisition

D: Both A and B

6) According to Mintzberg, which of the following is true of senior managers?

A: They rely heavily on formal information systems.

B: They practise a science and a profession.

C: They spend little time on systematic planning.

D: They have few regular duties to perform.

7) When a firm's engineers break down a competitor's product to learn about new technical innovations, they are engaging in -----.

A: Espionage

B: Reverse engineering

C: Reengineering

D: Illegal activities

8) In Wealth of Nations, Adam Smith described the breakdown of jobs into narrow and repetitive tasks and called this -----.

A: Assembly lines

B: Lowest common factor of work

C: Highest common factor of work

D: Division of labour

9) Organizations that have developed the capacity to continuously adapt and change because their members take an active role in indentifying and resolving work-related issues are called ----- organizations.

A: Learning

B: Visionary

C: Community

D: Interdependent

10) If United Airlines merged with Northwest Airlines, this would be an example of what kind of grand growth strategy?

A: Acquisition

B: Vertical integration

C: Horizontal integration

D: Expansion



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Principles of Management (SS)

Course Code: IT-302 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2. Give Short Answers.

(10x2=20)

1. Point out the distinctive contribution of Taylor to the theory of management. Why is he regarded as the father of Scientific Management?
2. Briefly explain the factors determining the degree of decentralization of authority?
3. What are the different levels of management in an organization? Explain with an example?
4. What is the importance of 'Management by objectives' to industry? Explain.
5. Distinguish between the terms "strategy" and "Policy". Can an organization be successful without effective strategies?
6. What are the three steps in the control process? Explain.
7. Define SWOT Analysis in detail?
8. What do you understand by effective organizing? Explain.
9. How efficiency and effectiveness vary from each other, explain with examples?
10. Differentiate between:
 - a. Specific plans and Directional plans
 - b. Job Description and Job Specification

Q3. Give Answers of the following Questions.

(3x10=30)

1. What is departmentation? What are the different bases of departmentation? Explain.
2. Differentiate between planning and controlling process. Mention four advantages and four limitations of planning?
3. Differentiate between transactional and transformational leaders. Do you think that most managers in real life use a contingency approach to increase their leadership effectiveness? Explain.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Formal Logic

Course Code: IT-303 NA Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(10 x 2 = 20)

- What is the difference between statement and sentence?
- Draw traditional square of Opposition.
- Construct a Venn diagram for I Proposition
- Define major and minor term.
- Define Inference.
- Define Quality and Quantity of a categorical Proposition.
- Define Soundness of the argument.
- Enumerate rule of distribution.
- Why question command and suggestion is not proposition.
- Draw Boolean Square of Opposition.

Q3: Use Venn diagram to determine the validity of the following syllogism. And also apply fallacy if commit.

10 marks

- EIO-4
- AAA-2
- OA0-1
- AEE-3
- OOO-4

Q4: Symbolize the following:

10 marks

- If John doesn't pass then he will lose his scholarship and drop out of school.
- If it rains and you don't open your umbrella then you will get wet.
- If your car won't start or you don't wake up on time then you will miss your interview and you will not get the new job.
- If you elect Mary then Mary will make sure that the federal budget will be balanced, partisan wrangling in Washington will cease, and there will be no cuts in social security benefits.
- If the cake gets hot the icing melts and if the icing melts the cake cannot be used at the wedding reception.

Q5: Define logic. Differentiate deductive and inductive argument with at least three examples.

10 marks



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Database Systems (CMP)
Course Code: IT-304 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

- i. A relational database consists of a collection of
a) Tables b) Fields c) Records d) Keys
- ii. For each attribute of a relation, there is a set of permitted values, called the _____ of that attribute.
a) Domain b) Relation c) Set d) Schema
- iii. By default sql server has _____ isolation level
a) READ COMMITTED b) READ UNCOMMITTED
c) SERIALIZABLE d) REPEATABLE READ
- iv. The deadlock state can be changed back to stable state by using _____ statement.
a) Commit b) Rollback c) Savepoint d) Deadlock
- v. An attribute is a _____ in a relation.
a) Row b) Column c) Value d) Tuple
- vi. Which command is used to create a new relation in SQL
a) create table b) create relation c) new table d) new relation
- vii. What does this query do? `select distinct dept_name from institute;`
a) It gives all the tuples having a distinct dept_name
b) It gives the dept_name attribute values of all tuples without repetition
c) It gives all the dept_name attribute of all the tuples
d) It gives all the tuples having a null value under the dept_name attribute
- viii. `Course(course_id,sec_id,semester)`
Here the `course_id,sec_id` and `semester` are _____ and `course` is a _____
a) Relations, Attribute b) Attributes, Relation
c) Tuple, Relation d) Tuple, Attributes
- ix. Foreign key is the one in which the _____ of one relation is referenced in another relation.
a) Foreign key b) Primary key c) References d) Check constraint
- x. The attribute AGE is calculated from `DATE_OF_BIRTH`. The attribute AGE is
a) Single valued b) Multi valued c) Composite d) Derived



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Database Systems (CMP)

Course Code: IT-304 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Short Questions (Marks 20)

Q. 2 A. Briefly explain the following questions. 2*5=10

- i. Explain Group By Clause in SQL.
- ii. Define theta join with an example.
- iii. What is the use of IN operator in SQL command?
- iv. What is concurrency and deadlock?
- v. Define multivalued attribute with an example.

B- Write SQL queries for the given statements 2*5=10

- i. Show the name and salary of all clerks having salary grade 1 and 2 or manager.
- ii. Show the dept name, Grade and ename of all employees working in Newyork or Chicago.
- iii. Show name of those employees working with king and getting less sal than king but hired before king.
- iv. Show ename of all employees getting salary more than king but less than any employee of dept 20 and more than any employee of department 30.
- v. Show name and salary of all employees working with KING and getting salary less than the king.

Emp (empno,ename,sal,comm,hiredate,mgr,deptno)

Dept(deptno,dname,loc)

SalGrade (Grade,minsal,maxsal)

Tables for queries

Subjective Question (Marks 30)

- Q. 3. Explain Three Tire ANSI-SPARC Architecture. 10**
- Q. 4. Explain ACID properties of transaction with example. 10**
- Q. 5. Define 2nd Normal Form. Remove Partial Dependency form given relation. 10**
Where StdID and CourseID is Composite key.

StdID	StdName	CourseID	CourseName	CNIC	DOB	Grade	Skills
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UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Operating Systems (CMP)

Course Code: IT-306 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(10 x 2 = 20)

- I. What is Convay Effect?
- II. Explain different states of process?
- III. Difference between long-term scheduler and short-term scheduler?
- IV. Explain deadlock conditions?
- V. Define dispatcher latency?
- VI. Define demand paging?
- VII. What is the process address space?
- VIII. Difference between paging and segmentation?
- IX. Define turn-around time?
- X. Define two operations of semaphore?

Q.3. Questions with long answers.

(3 x 10 = 30)

(a) Solve the following question using banker's algorithm?

	ALLOCATION				MAX				AVAILABLE			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	0	1	0	0	0	5	1	3	1	3	2	2
P1	1	0	0	0	1	2	5	2				
P2	1	0	5	2	2	0	5	2				
P3	0	1	3	1	0	2	5	2				
P4	0	0	1	2	0	3	5	3				

- i. What is the content of the need matrix? (5)
- ii. Is the system in a safe state? (5)

(b) Find the average waiting time using Shortest Remaining time method? (10)

Process	Arrival Time	Burst Time
P1	0.0	7
P2	2.0	4
P3	4.0	1
P4	5.0	4

(c) Given memory partitions of 100K, 600K, 200K, 300K, and 500K (in order), how would each of the First-fit, Best-fit, and Worst-fit algorithms place processes of 409K, 236K, 125K, and 514K (in order)?

1. Also define First-fit, Best-fit, and Worst-fit algorithms. (6)
2. Which algorithm makes the most efficient use of memory? (4)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Operating Systems (CMP)
Course Code: IT-306 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- I. In shortest job first algorithm CPU schedule process according to the,
 - a. Priority Wise
 - b. Distribute CPU resources equally among processes
 - c. CPU Burst
 - d. All of these
- II. The number of processes completed per unit time is known as _____
 - a) Output
 - b) Throughput
 - c) Efficiency
 - d) Capacity
- III. The degree of multiprogramming is:
 - a) the number of processes executed per unit time
 - b) the number of processes in the ready queue
 - c) the number of processes in the I/O queue
 - d) the number of processes in memory
- IV. If no cycle exists in the resource allocation graph then :
 - a) The system will not be in a safe state
 - b) The system will be in a safe state
 - c) All of the mentioned
 - d) none of the mentioned
- V. An IPC facility provides at least two operations :
 - a) write & delete message
 - b) delete & receive message
 - c) send & delete message
 - d) receive & send message
- VI. Virtual memory is
 - (a) Large secondary memory
 - (b) Large main memory
 - (c) Illusion of large main memory
 - (d) None of the above
- VII. Thrashing occurs when
 - (a) When a page fault occurs
 - (b) Processes on system frequently access pages not memory
 - (c) Processes on system are in running state
 - (d) Processes on system are in waiting state
- VIII. _____ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.
 - a. Paging
 - b. Demand paging
 - c. Segmentation
 - d. Swapping
- IX. Swap space exists in:
 - a. primary memory
 - b. secondary memory
 - c. CPU
 - d. none of the mentioned
- X. When a program tries to access a page that is mapped in address space but not loaded in physical memory, then?
 - a. segmentation fault occurs
 - b. fatal error occurs
 - c. page fault occurs
 - d. no error occurs



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Object Oriented Analysis and Design
Course Code: IT-307 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- 1) A Class diagram shows relationship between/among _____
A) Classes B) Interfaces
C) Organization D) None of them

- 2) What is the programming style of the object oriented conceptual model?
A) Invariant relationship B) Algorithms
C) Classes and objects D) Goals, often expressed in a predicate calculus

- 3) Which artifact is NOT an input to Analysis and Design?
A) use-case model B) glossary
C) Supplementary specifications D) vision

- 4) Abstraction is classified into _____ types
A) 4 B) 3
C) 2 D) 1

- 5) Single inheritance, multiple inheritance, and Aggregation comes under _____
a) Modularity b) Typing
c) Hierarchy d) None of the mentioned

6. In OO system, the Class is a basic unit. Therefore, the localization is based on
a) Objects c) Message
b) Methods d) Polymorphism

7. In which of the following mechanisms, types of all variables and expressions are fixed at compilation time.
a) Strong Typing c) Dynamic Binding
b) Weak Typing d) Static Binding

8. Actor who has an interest in behavior of use case:
a) Primary Actor c) Supporting Actor
b) Off stage Actor d) Both A & C

9. Which doesn't represent a relationship in UML?
a) Dependency c) Generalization
b) Specification d) Aggregation

10. Use cases describe the behavior of the system as seen from _____ point of view.
a) Classes c) Nodes
b) Objects d) Interfaces



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Hadith-III

MAX. TIME: 15 Min.

Course Code: ISE-301 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

سوال نمبر 1 - سوالات کے دیے گئے جوابات میں سے درست جواب پر (✓) کا نشان لگائیے۔ (10)

- I. مشکوٰۃ المصابیح کی تیسری فصل میں ہیں
(ا) صرف صحیح احادیث (ب) صرف ضعیف احادیث (ج) صحیح اور ضعیف احادیث (د) تمام جوابات غلط ہیں
- II. ایمان کی سب سے کمتر شاخ
(ا) ظلم برداشت کرنا (ب) راستے سے تکلیف دہ چیز کو ہٹانا (ج) بڑوں کا احترام کرنا (د) نفل ادا کرنا
- III. اللہ تعالیٰ علم کو قبض فرمائیں گے
(ا) تقلیبی ادارے بند کر کے (ب) کتابوں کو تباہ کر کے (ج) علماء کو اٹھا کر (د) تمام جوابات درست ہیں
- IV. عمدۃ القاری تصنیف ہے
(ا) انور شاہ کا شمیری کی (ب) بدر الدین عینی کی (ج) ابن حجر عسقلانی کی (د) ملا علی قاری کی
- V. ابن الاثیر مبارک بن محمد کی تالیف کا نام
(ا) الکفایتہ (ب) جامع الاصول (ج) شرح مسلم (د) تمام جوابات درست ہیں
- VI. ایسے پھلوں کی فصل کی تجارت منع ہے
(ا) جو مالک کے قبضے میں نہ ہو (ب) جو پھل ابھی پکے نہ ہوں
(ج) جن پھلوں کا خفیہ عیب ظاہر نہ کیا گیا ہو (د) تمام جوابات درست ہیں
- VII. ربا الفضل کی مذمت کی گئی ہے
(ا) قرآن مجید میں (ب) حدیث شریف میں (ج) اقوال صحابہ میں (د) تمام جوابات درست ہیں
- VIII. رسول اللہ صلی اللہ علیہ وسلم کی سنت ہے کہ۔
(ا) اکثر مسکراتے کبھی نہ ہنستے (ب) اکثر ہنستے کبھی مسکراتے بھی
(ج) اکثر مسکراتے کبھی ہنستے بھی (د) اکثر ہنستے کبھی نہ مسکراتے
- IX. جس شخص کے جسم کے اندر قرآن کریم میں سے کچھ بھی نہ ہو وہ ایسے ہے جیسے
(ا) تباہ شدہ بستی (ب) اجڑا ہوا گھر (ج) سیاہ عمارت (د) ٹوٹی ہوئی دیوار
- X. نویرہ نام ہے۔
(ا) ایک قوم کا (ب) ایک باغ کا (ج) ایک خاتون کا (د) ایک بستی کا



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Islam & Modern Social Thought
Course Code: ISE-303 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

(10x1=10)

مندرجہ ذیل میں سے دس سوالات کے درست جواب پر صحیح (✓) کا نشان لگائیں۔

سوال نمبر: .i

i. Which is the book of Imam Ghazali?

- (a) Pardah (b) Lamhaat (c) Ahya-ul-Uloom

امام غزالیؒ کی کتاب ہے:

.i

(الف) پردہ (ب) لحات (ج) احیاء العلوم

ii. Which is the nearest to Taqwa?

- (a) Equality (b) Justice (c) Brotherhood

تقویٰ کے سب سے زیادہ قریب ہے:

.ii

(الف) مساوات (ب) عدل (ج) اخوت

iii. Which Surah of the Holy Quran has Bismillah twice?

- (a) Al-Baqra (b) Al-Touba (c) Al-Namal

قرآن مجید کی کس سورت میں دو دفعہ بسم اللہ ہے؟

.iii

(الف) البقرہ (ب) التوبہ (ج) النمل

iv. Half of the faith is:

- (a) Prayer (b) Hajj (c) Nikah

نصف ایمان ہے:

.iv

(الف) نماز (ب) حج (ج) نكاح

v. Inna _____ Inda Allah Atqakum.

- (a) Akramkum (b) Aazamakum (c) Aalamakum

ان..... عند اللہ اتقکم

.v

(الف) اکرمکم (ب) اعظمکم (ج) اعلمکم

vi. How many kinds of divorce are:

- (a) Two (b) Three (c) Four

طلاق کی کتنی قسمیں ہیں:

.vi

(الف) دو (ب) تین (ج) چار

vii. The name of Hanif Nadvi's book is:

- (a) Asasiat-e-Islam (b) Islam and Ijtmaiyyat (c) Muashrayat

مولانا حنیف ندویؒ کی کتاب کا نام ہے:

.vii

(الف) اساسیات اسلام (ب) اسلام اور اجتماعیت (ج) معاشریات

P.T.O



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Real Analysis-I

Course Code: MATH-301 Part – II

MAX. TIME: 2 Hrs. 30 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Questions with Short Answers

1. Show that two real number x and y are equal if and only if $\forall \epsilon > 0$ it follows that $|x - y| < \epsilon$. (4 marks)
2. Let $\omega \in \mathbb{R}$ be an irrational positive number. Set $A = \{m + n\omega : m + n\omega > 0 \text{ and } m, n \in \mathbb{Z}\}$. Show that $\inf(A) = 0$. (4 marks)
3. Suppose that $f : [0, 2] \rightarrow \mathbb{R}$ is continuous on $[0, 2]$ and differentiable on $(0, 2)$, and that $f(0) = 0, f(1) = 1, f(2) = 1$. Show that there exists $c_1 \in (0, 2)$ such that $f'(c_1) = 1$. (4 marks)
4. If $\omega = f(x, y)$ and $x = u \cosh v, y = u \sinh v$. Then show that (4 marks)

$$\left(\frac{\partial \omega}{\partial x}\right)^2 - \left(\frac{\partial \omega}{\partial y}\right)^2 = \left(\frac{\partial \omega}{\partial u}\right)^2 - \frac{1}{u^2} \left(\frac{\partial \omega}{\partial v}\right)^2$$

5. Let (x_n) be a sequence defined by $x_1 = 1$ and $x_{n+1} = \sqrt{x_n^2 + \frac{1}{2^n}}$. Show that (x_n) is convergent. (4 marks)

Questions with Brief Answers

6. Show that (a, b) is a neighborhood of any point $x \in (a, b)$. (6 marks)
7. State and prove Monotone Convergence Theorem. (6 marks)
8. Show that $\lim_{x \rightarrow 0} \sin\left(\frac{1}{x}\right)$ and $\lim_{x \rightarrow 0} \frac{1}{x}$ do not exist in \mathbb{R} . (6 marks)
9. If $f : I \rightarrow \mathbb{R}$ has a derivative at $c \in I$, then f is continuous at c . (6 marks)
10. Let $I := [a, b]$ be a closed bounded interval and let $f : I \rightarrow \mathbb{R}$ be continuous on I . Then f is bounded on I . (6 marks)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Real Analysis-I
Course Code: MATH-301 Part-I (Compulsory)

MAX. TIME: 30 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Let $n \in \mathbb{N}$ be such that $n \geq 3$ and $-x^2 \leq x^n \leq x^2$ for $-1 < x < 1$. If $\lim_{x \rightarrow 0} x^2 = 0$, then $\lim_{x \rightarrow 0} x^n =$ (1 mark)

- (a) 0
- (b) not equal to zero
- (c) less than zero
- (d) none of the above

2. Let $I := [a, b]$ and let $f: I \rightarrow \mathbb{R}$ be continuous on I . If $f(a) < 0 < f(b)$, or if $f(a) > 0 > f(b)$, then there exists a number $c \in (a, b)$ such that (1 mark)

- (a) $f(c) > 0$
- (b) $f(c) = 0$
- (c) $f(c) < 0$
- (d) $f(c) \neq k$

3. Choose the increasing sequence form the following: (1 mark)

- (a) $\left(\frac{1}{n+3} : n \in \mathbb{N}\right)$
- (b) $(n : n \in \mathbb{N})$
- (c) $\left(\frac{1}{n+8} : n \in \mathbb{N}\right)$
- (d) $\left(\frac{1}{n^3} : n \in \mathbb{N}\right)$

4. Let f, g be defined on $A \subseteq \mathbb{R}$ to \mathbb{R} , and let c be a cluster point of A . Suppose that f is bounded on a neighborhood of c and that $\lim_{x \rightarrow c} g = 0$. Then (1 mark)

- (a) $\lim_{x \rightarrow c} fg = 0$
- (b) $\lim_{x \rightarrow c} g \neq 0$
- (c) $\lim_{x \rightarrow c} g < 0$
- (d) none of the above

5. The function $g(x) = x$ is (1 mark)

- (a) not continuous on \mathbb{R}
- (b) continuous on \mathbb{R}
- (c) oscillating on \mathbb{R}
- (d) none of the above

P.T.O.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Real Analysis-I

Course Code: MATH-301 Part – II

MAX. TIME: 2 Hrs. 30 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Questions with Short Answers

1. Show that two real number x and y are equal if and only if $\forall \epsilon > 0$ it follows that $|x - y| < \epsilon$. (4 marks)
2. Let $\omega \in \mathbb{R}$ be an irrational positive number. Set $A = \{m + n\omega : m + n\omega > 0 \text{ and } m, n \in \mathbb{Z}\}$. Show that $\inf(A) = 0$. (4 marks)
3. Suppose that $f : [0, 2] \rightarrow \mathbb{R}$ is continuous on $[0, 2]$ and differentiable on $(0, 2)$, and that $f(0) = 0, f(1) = 1, f(2) = 1$. Show that there exists $c_1 \in (0, 2)$ such that $f'(c_1) = 1$. (4 marks)
4. If $\omega = f(x, y)$ and $x = u \cosh v, y = u \sinh v$. Then show that (4 marks)

$$\left(\frac{\partial \omega}{\partial x}\right)^2 - \left(\frac{\partial \omega}{\partial y}\right)^2 = \left(\frac{\partial \omega}{\partial u}\right)^2 - \frac{1}{u^2} \left(\frac{\partial \omega}{\partial v}\right)^2$$

5. Let (x_n) be a sequence defined by $x_1 = 1$ and $x_{n+1} = \sqrt{x_n^2 + \frac{1}{2^n}}$. Show that (x_n) is convergent. (4 marks)

Questions with Brief Answers

6. Show that (a, b) is a neighborhood of any point $x \in (a, b)$. (6 marks)
7. State and prove Monotone Convergence Theorem. (6 marks)
8. Show that $\lim_{x \rightarrow 0} \sin\left(\frac{1}{x}\right)$ and $\lim_{x \rightarrow 0} \frac{1}{x}$ do not exist in \mathbb{R} . (6 marks)
9. If $f : I \rightarrow \mathbb{R}$ has a derivative at $c \in I$, then f is continuous at c . (6 marks)
10. Let $I := [a, b]$ be a closed bounded interval and let $f : I \rightarrow \mathbb{R}$ be continuous on I . Then f is bounded on I . (6 marks)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Group Theory-I

Course Code: MATH-302 Part – II

MAX. TIME: 2 Hrs. 30 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q-2 Solve the following 'SHORT' Questions.

(2 × 10 = 20)

1. Prove that if every element of a group is its own inverse then G is abelian.
2. Define derived subgroup and center of a group.
3. Show that a subgroup of index 2 is normal in G .
4. Define kernel of a group homomorphism with example.
5. Define transposition and determine its order.
6. If $H \subseteq G$ and G is abelian then prove that $N_G(H) = G$.
7. Check whether the group of order 15 is cyclic or not?
8. Let $X = \{e, a^2, a^3\}$ on $D_4 = \{e, a^2, a^3, b, ab, a^2b, a^3b\}$. Find $C_{D_4}(X)$.
9. Prove that a group of prime order is always cyclic.
10. Give an example of non-abelian group whose all subgroups are normal.

Q-3 Solve the following 'LONG' Questions.

(10 × 3 = 30)

1. a) Prove that any two cyclic group of same order are isomorphic.
b) Find all the conjugacy classes of V_4 .
2. a) State and prove first isomorphism theorem.
b) Show that an infinite cyclic group has exactly two distinct generators.
3. a) State and Prove Lagrange Theorem.
b) Find all the subgroups of a cyclic group of order 12.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Group Theory-I
Course Code: MATH-302 Part-I (Compulsory)

MAX. TIME: 30 Min.

MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Every subgroup of cyclic group is

- (a) always cyclic (b) may or may not cyclic (c) noncyclic (d) none

2. Centre of finite p - group

- a) trivial (b) nontrivial (c) Both (d) none of these

3. All the sylow-p subgroups are

- (a) Normal (b) Cyclic (c) Conjugate (d) None of these
(b)

4. A subgroup of index _____ is always normal subgroup.

- a) 1 b) 2 c) 3 d) 4

5. The order of $\begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \end{pmatrix}$ is

- a) 2 b) 3 c) 4 d) 0

6. A cyclic group of order n has _____ possible distinct generators.

- a) one b) $\phi(n)$ (c) n (d) none

7. Every subgroup of symmetric group S_3 is

- a) normal (b) cyclic (c) non-cyclic (d) non-abelian

8. Let G be an abelian group. Then $Z(G) =$

- a) $\{e\}$ b) ϕ c) G d) X

9. A group having order p^2 is always

- a) Abelian b) Non-Abelian c) Normal d) None of these

10. The kernel of group is always

- a) normal (b) cyclic (c) non-cyclic (d) non-abelian



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Group Theory-I

Course Code: MATH-302

Part-I (Compulsory)

MAX. TIME: 30 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Every subgroup of cyclic group is

- (a) always cyclic (b) may or may not cyclic (c) noncyclic (d) none

2. Centre of finite p - group

- a) trivial (b) nontrivial (c) Both (d) none of these

3. All the sylow- p subgroups are

- (a) Normal (b) Cyclic (c) Conjugate (d) None of these
(b)

4. A subgroup of index _____ is always normal subgroup.

- a) 1 b) 2 c) 3 d) 4

5. The order of $\begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \end{pmatrix}$ is

- a) 2 b) 3 c) 4 d) 0

6. A cyclic group of order n has _____ possible distinct generators.

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7. Every subgroup of symmetric group S_3 is

- a) normal (b) cyclic (c) non-cyclic (d) non-abelian

8. Let G be an abelian group. Then $Z(G) =$

- a) $\{e\}$ b) ϕ c) G d) X

9. A group having order p^2 is always

- a) Abelian b) Non-Abelian c) Normal d) None of these

10. The kernel of group is always

- a) normal (b) cyclic (c) non-cyclic (d) non-abelian



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Complex Analysis-I
Course Code: MATH-303 Part-I (Compulsory)

MAX. TIME: 30 Min.

MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Question I. Circle the correct answer to each question. 1 x 10 = 10

- The function $f(z) = \sin(x + iy)$ is
(a) Analytic (b) Not analytic (c) Harmonic (d) None of these
- For any $p \in \mathbb{R}$, $\lim_{z \rightarrow 1} \frac{z^p - 1}{z - 1} =$
(a) 0 (b) 1 (c) p (d) Does not exist
- The complex conjugate \bar{z} is found by _____ z across the real axis.
(a) Translating (b) Reflecting (c) Magnifying (d) None of these
- $\text{Log}(1) =$
(a) $i\frac{\pi}{2}$ (b) $\frac{\pi}{2}$ (c) $\frac{\pi}{4}$ (d) 0
- $|e^z| =$
(a) e^y (b) e^x (c) $e^x e^y$ (d) e^{x+y}
- The mapping $w = e^z$ is _____ through out the entire z -plane.
(a) Isogonal (b) Conformal (c) Linear (d) None of these
- A point is said to a _____ of a curve C if C passes through that point more than once.
(a) Singular point (b) Fixed point (c) Multiple point (d) None of these
- For $C : |z| = 1$, the value of $\int_C \frac{dz}{z^2 - 4} =$ _____ is
(a) 2π (b) $2\pi i$ (c) 0 (d) None of these
- If $\alpha = 1$ in a linear transformation $w = \alpha z + \beta$ then w becomes
(a) Rotation (b) Magnification
(c) Translation (d) Möbius transformation
- If a function f is analytic throughout a simply connected domain D then $\int_C f(z) dz = 0$ for every closed contour C lying in D .
(a) Cauchy-Goursat theorem (b) Morera's theorem
(c) Liouville's theorem (d) Cauchy inequality theorem



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Complex Analysis-I
Course Code: MATH-303 Part-I (Compulsory)

MAX. TIME: 30 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Question I. Circle the correct answer to each question. 1 x 10 = 10

- The function $f(z) = \sin(x + iy)$ is
(a) Analytic (b) Not analytic (c) Harmonic (d) None of these
- For any $p \in \mathbb{R}$, $\lim_{z \rightarrow 1} \frac{z^p - 1}{z - 1} =$
(a) 0 (b) 1 (c) p (d) Does not exist
- The complex conjugate \bar{z} is found by _____ z across the real axis.
(a) Translating (b) Reflecting (c) Magnifying (d) None of these
- $\text{Log}(1) =$
(a) $i\frac{\pi}{2}$ (b) $\frac{\pi}{2}$ (c) $\frac{\pi}{4}$ (d) 0
- $|e^z| =$
(a) e^y (b) e^x (c) $e^x e^y$ (d) e^{x+y}
- The mapping $w = e^z$ is _____ through out the entire z -plane.
(a) Isogonal (b) Conformal (c) Linear (d) None of these
- A point is said to a _____ of a curve C if C passes through that point more than once.
(a) Singular point (b) Fixed point (c) Multiple point (d) None of these
- For $C : |z| = 1$, the value of $\int_C \frac{dz}{z^2 - 4} =$ _____ is
(a) 2π (b) $2\pi i$ (c) 0 (d) None of these
- If $\alpha = 1$ in a linear transformation $w = \alpha z + \beta$ then w becomes
(a) Rotation (b) Magnification
(c) Translation (d) Möbius transformation
- If a function f is analytic throughout a simply connected domain D then $\int_C f(z) dz = 0$ for every closed contour C lying in D .
(a) Cauchy-Goursat theorem (b) Morera's theorem
(c) Liouville's theorem (d) Cauchy inequality theorem



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Vector and Tensor Analysis
Course Code: MATH-304 Part-I (Compulsory)

MAX. TIME: 30 Min.
MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (i) The divergence of $\frac{\vec{r}}{r^3}$ is _____.
- (i) 3 (ii) 2 (iii) 1 (iv) 0
- (ii) Let $(x, y, z) = (u_1, u_2, u_3)$, where left hand side coordinates are rectangular and right hand side coordinates are curvilinear coordinates of a point such that $ds^2 = 14 du_1^2 + 6 du_2^2 + 6 du_3^2 + 6 du_1 du_2$, then the system is _____ coordinate system.
- (i) Orthogonal curvilinear (ii) Non-orthogonal curvilinear
(iii) Homogeneous (iv) Barycentric
- (iii) How many components does a tensor of rank 4 in a 3-dimensional space?
- (i) 12 (ii) 64 (iii) 81 (iv) 7
- (iv) Conjugate metric tensor for an orthogonal curvilinear coordinate system for which $(g_{\alpha\beta}) = \text{diag}(1, \rho^2, 1)$ is _____.
- (i) $(g_{\alpha\beta}) = \text{diag}(1, \rho^{-2}, 1)$ (ii) $(g_{\alpha\beta}) = \text{diag}(1, \rho^2, 1)$
(iii) $(g_{\alpha\beta}) = \text{diag}(1, \rho, \rho \sin\alpha)$ (iv) None of these
- (v) A vector is solenoidal if its _____ is zero.
- (i) Gradient (ii) Curl (iii) Divergence (iv) Directional angle
- (vi) The volume of the parallelepiped with sides $\vec{A} = 3\hat{i} - \hat{j}$, $\vec{B} = \hat{j} + 2\hat{k}$, $\vec{C} = \hat{i} + 5\hat{j} + 4\hat{k}$ is _____.
- (i) -10 (ii) 20 (iii) 10 (iv) None of these
- (vii) $\vec{A} = 18z\hat{i} - 12\hat{j} + 3y\hat{k}$, $z = \frac{12-2x-3y}{6}$ and $\hat{n} = \frac{1}{7}(2\hat{i} + 3\hat{j} + 6\hat{k})$, a unit normal to the surface which has the projection in the xy -plane for which $0 \leq x \leq 6, 0 \leq y \leq \frac{12-2x}{3}$.
Then the surface integral $\iint \vec{A} \cdot \hat{n} dS =$ _____.
- (i) 24 (ii) 12 (iii) Zero (iv) None of these
- (viii) The line integral $\int_{P_1}^{P_2} \vec{A} \cdot d\vec{r}$ appears to be independent of the curved path C in a region R joining the two points P_1 & P_2 . Then what is true about the vector field \vec{A} ?
- (i) $\nabla \times \vec{A} = 0$ (ii) $\nabla \cdot \vec{A} = 0$ (iii) $\nabla \times \vec{A} \neq 0$ (iv) None of these
- (ix) Contraction of A_{qr}^p results in a _____.
- (i) scalar (ii) tensor of rank 1 (iii) tensor of rank 2 (iv) None of these
- (x) Stokes theorem converts line integral to _____ integral.
- (i) Volume (ii) Surface (iii) Line (iv) None of these



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Vector and Tensor Analysis
Course Code: MATH-304 Part-I (Compulsory)

MAX. TIME: 30 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (i) The divergence of $\frac{\vec{r}}{r^3}$ is _____.
- (i) 3 (ii) 2 (iii) 1 (iv) 0
- (ii) Let $(x, y, z) = (u_1, u_2, u_3)$, where left hand side coordinates are rectangular and right hand side coordinates are curvilinear coordinates of a point such that $ds^2 = 14 du_1^2 + 6 du_2^2 + 6 du_3^2 + 6 du_1 du_2$, then the system is _____ coordinate system.
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(iii) Homogeneous (iv) Barycentric
- (iii) How many components does a tensor of rank 4 in a 3-dimensional space?
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- (iv) Conjugate metric tensor for an orthogonal curvilinear coordinate system for which $(g_{\alpha\beta}) = \text{diag}(1, \rho^2, 1)$ is _____.
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- (v) A vector is solenoidal if its _____ is zero.
- (i) Gradient (ii) Curl (iii) Divergence (iv) Directional angle
- (vi) The volume of the parallelepiped with sides $\vec{A} = 3\hat{i} - \hat{j}$, $\vec{B} = \hat{j} + 2\hat{k}$, $\vec{C} = \hat{i} + 5\hat{j} + 4\hat{k}$ is _____.
- (i) -10 (ii) 20 (iii) 10 (iv) None of these
- (vii) $\vec{A} = 18z\hat{i} - 12\hat{j} + 3y\hat{k}$, $z = \frac{12-2x-3y}{6}$ and $\hat{n} = \frac{1}{7}(2\hat{i} + 3\hat{j} + 6\hat{k})$, a unit normal to the surface which has the projection in the xy -plane for which $0 \leq x \leq 6, 0 \leq y \leq \frac{12-2x}{3}$. Then the surface integral $\iint \vec{A} \cdot \hat{n} dS =$ _____.
- (i) 24 (ii) 12 (iii) Zero (iv) None of these
- (viii) The line integral $\int_{P_1}^{P_2} \vec{A} \cdot d\vec{r}$ appears to be independent of the curved path C in a region R joining the two points P_1 & P_2 . Then what is true about the vector field \vec{A} ?
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- (ix) Contraction of A_{qr}^p results in a _____.
- (i) scalar (ii) tensor of rank 1 (iii) tensor of rank 2 (iv) None of these
- (x) Stokes theorem converts line integral to _____ integral.
- (i) Volume (ii) Surface (iii) Line (iv) None of these



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Topology

MAX. TIME: 30 Min.

Course Code: MATH-305 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (i) In (\mathbb{R}, τ) with the usual topology τ or \mathbb{R} the frontier of set $A = \{-\pi, -e, 0, e, \pi\}$ is ...
 (a) $\{-4, -2, 0, 2, 4\}$ (b) $\{-\pi, -e, 0, e, \pi\}$ (c) \mathbb{R} (d) \emptyset
- (ii) In (\mathbb{R}, τ) with the usual topology τ or \mathbb{R} if $A = \{1, \frac{1}{2}, \frac{1}{3}, \dots\}$ then $\overline{A^\circ}$ is ...
 (a) $\{1, \frac{1}{2}, \frac{1}{3}, \dots\}$ (b) $\{0, 1, \frac{1}{2}, \frac{1}{3}, \dots\}$ (c) \mathbb{R} (d) \emptyset
- (iii) In the real line \mathbb{R} consider $A_n = (\frac{-1}{n}, \frac{1}{n})$, $n \in \mathbb{N}$, then $\bigcap_{n \in \mathbb{N}} A_n$ is ...
 (a) \emptyset (b) $\{0\}$ (c) $(-1, 1)$ (d) $(\frac{-1}{n}, \frac{1}{n})$
- (iv) Let \mathbb{N} be the set of natural numbers and τ be the co-finite topology on \mathbb{N} and if $A_n = \{2, 3, 4, \dots, n+1\}$, $n \in \mathbb{N}$, then $\bigcup_{n \in \mathbb{N}} \overline{A_n}$
 (a) $\{1, 2, 3, \dots\}$ (b) $\mathbb{N} \setminus \{2, 3, 4, \dots\}$ (c) $\mathbb{N} \setminus \{1\}$ (d) \emptyset
- (v) Let X be any uncountable set with co-finite topology on X , then (X, τ) is ...
 (a) Neither first nor second countable (b) Second countable
 (c) First countable but not second countable (d) First countable
- (vi) Let $X = \{a, b, c, d, e\}$ and $\tau = P(X)$, then the sub-base for (X, τ) is ...
 (a) $\{\{a, b\}, \{b, c\}, \{c, d\}, \{d, e\}\}$ (b) $\{\{a\}, \{b\}, \{c\}, \{d\}, \{e\}\}$
 (c) $\{\{a, b\}, \{b, c\}, \{c, d\}, \{d, e\}, \{e, a\}\}$ (d) $\{\{a, b, c\}, \{b, c, d\}, \{c, d, e\}\}$
- (vii) Let X be a T_1 -space and A a subset of X . If x is a limit point of A then every open set containing x contains ...
 (a) only one point of A (b) infinite number of distinct points of A
 (c) no point of A (d) finite points of A
- (viii) Every compact Hausdorff space is ...
 (a) Lindelof (b) T_3 (c) regular (d) normal
- (ix) If a Hausdorff space X has an open base whose sets are also closed then X is ...
 (a) totally disconnected (b) component (c) compact regular (d) locally compact
- (x) Let $f : \mathbb{R} \rightarrow \mathbb{R}$ be a function defined by $f(x) = \begin{cases} x & \text{if } x \neq 1 \\ 3 & \text{if } x = 1 \end{cases}$
 and let $O = (2, 4)$ be open in (\mathbb{R}, d) with usual metric d on \mathbb{R} . Then $f^{-1}(O) = \dots$
 (a) $O = (2, 4)$ (b) $O = [2, 4]$
 (c) $O = (2, 4]$ regular (d) $\{1\} \cup (2, 4)$



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Topology

MAX. TIME: 30 Min.

Course Code: MATH-305 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (i) In (\mathbb{R}, τ) with the usual topology τ or \mathbb{R} the frontier of set $A = \{-\pi, -e, 0, e, \pi\}$ is ...
 (a) $\{-4, -2, 0, 2, 4\}$ (b) $\{-\pi, -e, 0, e, \pi\}$ (c) \mathbb{R} (d) \emptyset
- (ii) In (\mathbb{R}, τ) with the usual topology τ or \mathbb{R} if $A = \{1, \frac{1}{2}, \frac{1}{3}, \dots\}$ then $\overline{A^\circ}$ is ...
 (a) $\{1, \frac{1}{2}, \frac{1}{3}, \dots\}$ (b) $\{0, 1, \frac{1}{2}, \frac{1}{3}, \dots\}$ (c) \mathbb{R} (d) \emptyset
- (iii) In the real line \mathbb{R} consider $A_n = (\frac{-1}{n}, \frac{1}{n})$, $n \in \mathbb{N}$, then $\bigcap_{n \in \mathbb{N}} A_n$ is ...
 (a) \emptyset (b) $\{0\}$ (c) $(-1, 1)$ (d) $(\frac{-1}{n}, \frac{1}{n})$
- (iv) Let \mathbb{N} be the set of natural numbers and τ be the co-finite topology on \mathbb{N} and if $A_n = \{2, 3, 4, \dots, n+1\}$, $n \in \mathbb{N}$, then $\bigcup_{n \in \mathbb{N}} \overline{A_n}$
 (a) $\{1, 2, 3, \dots\}$ (b) $\mathbb{N} \setminus \{2, 3, 4, \dots\}$ (c) $\mathbb{N} \setminus \{1\}$ (d) \emptyset
- (v) Let X be any uncountable set with co-finite topology on X , then (X, τ) is ...
 (a) Neither first nor second countable (b) Second countable
 (c) First countable but not second countable (d) First countable
- (vi) Let $X = \{a, b, c, d, e\}$ and $\tau = P(X)$, then the sub-base for (X, τ) is ...
 (a) $\{\{a, b\}, \{b, c\}, \{c, d\}, \{d, e\}\}$ (b) $\{\{a\}, \{b\}, \{c\}, \{d\}, \{e\}\}$
 (c) $\{\{a, b\}, \{b, c\}, \{c, d\}, \{d, e\}, \{e, a\}\}$ (d) $\{\{a, b, c\}, \{b, c, d\}, \{c, d, e\}\}$
- (vii) Let X be a T_1 -space and A a subset of X . If x is a limit point of A then every open set containing x contains ...
 (a) only one point of A (b) infinite number of distinct points of A
 (c) no point of A (d) finite points of A
- (viii) Every compact Hausdorff space is ...
 (a) Lindelof (b) T_3 (c) regular (d) normal
- (ix) If a Hausdorff space X has an open base whose sets are also closed then X is ...
 (a) totally disconnected (b) component (c) compact regular (d) locally compact
- (x) Let $f : \mathbb{R} \rightarrow \mathbb{R}$ be a function defined by $f(x) = \begin{cases} x & \text{if } x \neq 1 \\ 3 & \text{if } x = 1 \end{cases}$
 and let $O = (2, 4)$ be open in (\mathbb{R}, d) with usual metric d on \mathbb{R} . Then $f^{-1}(O) = \dots$
 (a) $O = (2, 4)$ (b) $O = [2, 4]$
 (c) $O = (2, 4]$ regular (d) $\{1\} \cup (2, 4)$



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Differential Geometry
Course Code: MATH-306 Part – II

MAX. TIME: 2 Hrs. 30 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Attempt the following short questions.

(5x4=20)

- (i) Find the curvature of folium of Descartes $x^3 + y^3 = 3axy$ at the given point $(\frac{3a}{2}, \frac{3a}{2})$.
- (ii) Show that the curvature κ_1 and torsion τ_1 of spherical indicatrix of the tangent to the curve $r(s)$ are $\kappa_1^2 = \frac{\kappa^2 + \tau^2}{\kappa^2}$ and $\tau_1 = \frac{\kappa\tau' - \kappa'\tau}{\kappa(\kappa^2 + \tau^2)}$, where κ and τ are curvature and torsion of the given curve $r(s)$.
- (iii) Prove that the curve $x = a \sin^2 u$, $y = a \sin u \cos u$, $z = a \cos u$ lies on a sphere. Verify that the normal planes pass through the origin.
- (iv) Prove that κ is a principal curvature with the principal directions if and only if κ, du, dv satisfy the equations $(L - \kappa E) du + (M - \kappa F) dv = 0$ and $(M - \kappa F) du + (N - \kappa G) dv = 0$ and that $du : dv$ is a principal direction if and only if $(EM - LF) du^2 + (EN - LG) dudv + (FN - MG) dv^2 = 0$, where E, F, G and L, M, N denote the first and second fundamental magnitudes of the surface $r = r(u, v)$.
- (v) What do you understand by the geodesic curvature of a curve? Find the expression for the geodesic curvature κ_g of the naturally represented curve $x = x(s) = x(u(s), v(s))$ of class C^2 on a patch $x = x(u, v)$ of class C^2 in terms of its fundamental magnitudes.

Q.3. Attempt the following long questions.

(3x10=30)

- i. State and prove the Serret-Frenet formulae for a space curve $r = r(s)$, assuming (t, n, b) as the moving orthogonal triad of unit vectors at a point on this space curve.
- ii. Find the unknown coefficients β_i^j and Γ_{ij}^k in the Gauss-Weingarten equations $r_{uv} = \Gamma_{11}^1 r_1 + \Gamma_{11}^2 r_2 + \alpha_{11} N$, $r_{uv} = \Gamma_{12}^1 r_1 + \Gamma_{12}^2 r_2 + \alpha_{12} N$, $r_{uv} = \Gamma_{22}^1 r_1 + \Gamma_{22}^2 r_2 + \alpha_{22} N$, $N_u = \beta_1^1 r_1 + \beta_1^2 r_2$, $N_v = \beta_2^1 r_1 + \beta_2^2 r_2$, where $r = r(u, v)$, $i, j, k = 1, 2$, $r_1 = r_u = \partial r / \partial u$, $r_2 = r_v = \partial r / \partial v$, $r_{uu} = \partial^2 r / \partial u^2$, $r_{uv} = \partial^2 r / \partial u \partial v$, $r_{vv} = \partial^2 r / \partial v^2$ and N is unit normal to the given surface.
- iii. Find the vanishing conditions for the mean curvature and Gaussian curvature for the surface $2z = ax^2 + 2hxy + by^2$, where x, y are parameters.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Differential Geometry

MAX. TIME: 30 Min.

Course Code: MATH-306 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (i) The normal at a point P of a given curve orthogonal to the osculating plane is called
(A) binormal at P (B) normal at P (C) principle normal (D) tangent at P .
- (ii) A vector perpendicular to the rectifying plane is parallel to the
(A) principal normal (B) tangent (C) binormal (D) more information is needed.
- (iii) If the torsion $\tau = 0$ at all points of a given curve $r = r(s)$ then the curve is a
(A) plane curve that lies in the osculating plane, (B) plane curve that lies in the rectifying plane (C) the space curve with zero curvature (D) no conclusion can be drawn.
- (iv) The number of contact points of the osculating sphere with the given curve is
(A) one (B) two (C) three (D) four.
- (v) The point on a surface $r = r(u, v)$ for which $r_u \times r_v = 0$, is called
(A) an ordinary point (B) a singular point (C) a regular point (D) a double point.
- (vi) A surface $x = x(u, v)$ is called a minimal surface if at all of its points, the mean curvature of the surface is
(A) positive (B) negative (C) zero (D) infinite
- (vii) A point P of a smooth surface is umbilical iff the Gaussian curvature K and the mean curvature H satisfy the relation
(A) $H^2 - K = 0$ (B) $H - K^2 = 0$ (C) $H - K = 0$ (D) $H + K = 0$.
- (viii) A metric on a surface under coordinate transformation is
(A) in-consistant (B) variable (C) invariant (D) more information is needed.
- (ix) A curve $x(s) = x(u(s), v(s))$ on a given surface $x = x(u, v)$ whose tangents at all of its points are in the direction of principal curvature, is called
(A) the skew curve (B) the line of curvature (C) the twisted curve (D) the rectifying plane
- (x) If E, F, G and e, f, g denote the first and second fundamental magnitudes of a surface $x = x(u, v)$, then the three relations $x_{uu} \cdot N$, $x_{uv} \cdot N$, $x_{vv} \cdot N$ reduce to the set of fundamental magnitudes
(A) E, F, G (B) e, f, g (C) E, f, G (D) e, F, g .



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Differential Geometry

Course Code: MATH-306 Part – II

MAX. TIME: 2 Hrs. 30 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Attempt the following short questions.

(5x4=20)

- (i) Find the curvature of folium of Descartes $x^3 + y^3 = 3axy$ at the given point $(\frac{3a}{2}, \frac{3a}{2})$.
- (ii) Show that the curvature κ_1 and torsion τ_1 of spherical indicatrix of the tangent to the curve $r(s)$ are $\kappa_1^2 = \frac{\kappa^2 + \tau^2}{\kappa^2}$ and $\tau_1 = \frac{\kappa\tau' - \kappa'\tau}{\kappa(\kappa^2 + \tau^2)}$, where κ and τ are curvature and torsion of the given curve $r(s)$.
- (iii) Prove that the curve $x = a \sin^2 u$, $y = a \sin u \cos u$, $z = a \cos u$ lies on a sphere. Verify that the normal planes pass through the origin.
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- (v) What do you understand by the geodesic curvature of a curve? Find the expression for the geodesic curvature κ_g of the naturally represented curve $x = x(s) = x(u(s), v(s))$ of class C^2 on a patch $x = x(u, v)$ of class C^2 in terms of its fundamental magnitudes.

Q.3. Attempt the following long questions.

(3x10=30)

- i. State and prove the Serret-Frenet formulae for a space curve $r = r(s)$, assuming (t, n, b) as the moving orthogonal triad of unit vectors at a point on this space curve.
- ii. Find the unknown coefficients β_i^j and Γ_{ij}^k in the Gauss-Weingarten equations $r_{uu} = \Gamma_{11}^1 r_1 + \Gamma_{11}^2 r_2 + \alpha_{11} N$, $r_{uv} = \Gamma_{12}^1 r_1 + \Gamma_{12}^2 r_2 + \alpha_{12} N$, $r_{vv} = \Gamma_{22}^1 r_1 + \Gamma_{22}^2 r_2 + \alpha_{22} N$, $N_u = \beta_1^1 r_1 + \beta_1^2 r_2$, $N_v = \beta_2^1 r_1 + \beta_2^2 r_2$, where $r = r(u, v)$, $i, j, k = 1, 2$, $r_1 = r_u = \partial r / \partial u$, $r_2 = r_v = \partial r / \partial v$, $r_{uu} = \partial^2 r / \partial u^2$, $r_{uv} = \partial^2 r / \partial u \partial v$, $r_{vv} = \partial^2 r / \partial v^2$ and N is unit normal to the given surface.
- iii. Find the vanishing conditions for the mean curvature and Gaussian curvature for the surface $2z = ax^2 + 2hxy + by^2$, where x, y are parameters.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Differential Geometry

MAX. TIME: 30 Min.

Course Code: MATH-306 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (i) The normal at a point P of a given curve orthogonal to the osculating plane is called
(A) binormal at P (B) normal at P (C) principle normal (D) tangent at P .
- (ii) A vector perpendicular to the rectifying plane is parallel to the
(A) principal normal (B) tangent (C) binormal (D) more information is needed.
- (iii) If the torsion $\tau = 0$ at all points of a given curve $r = r(s)$ then the curve is a
(A) plane curve that lies in the osculating plane, (B) plane curve that lies in the rectifying plane (C) the space curve with zero curvature (D) no conclusion can be drawn.
- (iv) The number of contact points of the osculating sphere with the given curve is
(A) one (B) two (C) three (D) four.
- (v) The point on a surface $r = r(u, v)$ for which $r_u \times r_v = 0$, is called
(A) an ordinary point (B) a singular point (C) a regular point (D) a double point.
- (vi) A surface $x = x(u, v)$ is called a minimal surface if at all of its points, the mean curvature of the surface is
(A) positive (B) negative (C) zero (D) infinite
- (vii) A point P of a smooth surface is umbilical iff the Gaussian curvature K and the mean curvature H satisfy the relation
(A) $H^2 - K = 0$ (B) $H - K^2 = 0$ (C) $H - K = 0$ (D) $H + K = 0$.
- (viii) A metric on a surface under coordinate transformation is
(A) in-constant (B) variable (C) invariant (D) more information is needed.
- (ix) A curve $x(s) = x(u(s), v(s))$ on a given surface $x = x(u, v)$ whose tangents at all of its points are in the direction of principal curvature, is called
(A) the skew curve (B) the line of curvature (C) the twisted curve (D) the rectifying plane
- (x) If E, F, G and e, f, g denote the first and second fundamental magnitudes of a surface $x = x(u, v)$, then the three relations $x_{uu} \cdot N$, $x_{uv} \cdot N$, $x_{vv} \cdot N$ reduce to the set of fundamental magnitudes
(A) E, F, G (B) e, f, g (C) E, f, G (D) e, F, g .



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Solid State Physics-1

Course Code: PHY-303 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2 Give to the point answer / short description of each question. (4 × 5 = 20)

- Draw (111), (200), (100) and $(\bar{1}00)$ crystallographic planes in cubic unit cell.
- Differentiate between Bravais and non-Bravais lattice with the help of diagrams.
- Explain primitive and non-primitive unit cell. Differentiate by sketching diagrams.
- Show that reciprocal of FCC lattice is a BCC lattice.
- Calculate the packing fraction of face-centered cubic (FCC) lattice.

Q.3

Consider a linear chain of diatomic atoms of masses m_1 and m_2 ($m_1 > m_2$) with repeat distance a and interatomic force constant c .

- Establish the equations of motion of two atoms and derive the dispersion relation for a diatomic linear lattice by taking into account nearest neighbor interaction only. (2+5)
- Plot the dispersion curve and distinguish optical and acoustical phonon branches in dispersion curve. (3)

Q.4

What kind of interaction exists between atoms of inert gas crystals? Discuss briefly. Show that the interaction between two identical inert gas atoms at separation R varies as $-CR^{-6}$.

(3+7)

Q.5

Derive an expression for lattice heat capacity of solids on the basis of classical model. Explain graphically the discrepancies of classical model in explaining the experimental observations for low and high temperature limits. (6+4)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Solid State Physics-1
Course Code: PHY-303 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- A) The coordination number of CsCl structure is
i) 5 ii) 7 iii) 8 iv) 14
- B) Which combination of following crystal structures are closely-packed structures?
i) FCC and SC ii) BCC and SC iii) BCC and HCP iv) HCP and FCC
- C) The space lattice of cesium chloride (CsCl) structure is:
i) Simple cubic ii) Body centered cubic iii) Face-centered cubic iv) None of these
- D) Reciprocal of face centered cubic (FCC) lattice is
i) FCC lattice ii) BCC lattice iii) SC lattice iv) HCP lattice v) none of these
- E) For p atoms in primitive cell, which of the following combination of acoustical and optical phonon branches in sequence is true?
i) $(3p-3, 3)$ ii) $(3, 3p-3)$ iii) $(3, 3)$ iv) none of these
- F) According to classical model of lattice heat capacity (C_v), C_v for all solids
i) depends on temperature ii) does not depend on temperature iii) remains constant at all temperatures iv) ii) and iii) v) none of these
- G) Van der Waals interactions in inert gas crystals are always
i) repulsive ii) attractive iii) neither attractive nor repulsive iv) zero v) none of these
- H) At low temperatures, phonon heat capacity, C_v (according of Debye model) varies as:
i) T^3 ii) $T^{3/2}$ iii) T^2 iv) T v) None of these
- I) In monatomic lattice, the frequency of the wave at long wavelengths varies with k as:
i) k ii) k^2 iii) k^3 iv) independent of wave-vector k
- J) In a cubic crystals, $[111]$ crystallographic direction to (111) crystal plane is always
i) Parallel ii) Perpendicular iii) neither parallel nor perpendicular iv) none of these



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Electronic Devices and Circuits

MAX. TIME: 15 Min.

Course Code: PHY-304-A Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (i) If both the emitter-base and the collector-base junctions of a BJT are forward biased, the transistor is in the
(a) active region (b) cut-off region (c) saturated region (d) inverse mode
- (ii) When operated in cutoff and saturation, the transistor acts like
(a) a switch (b) a linear amplifier (c) an oscillator (d) a variable resistor
- (iii) The input resistance of a common-collector amplifier is
(a) very low (b) very high (c) the same as a CE (d) none of these answers
- (iv) The low-frequency response of an amplifier is determined by the
(a) coupling capacitors (b) bias circuit
(c) transistor capacitances (d) all of these answers
- (v) The bandwidth of an amplifier is defined by
(a) the midrange gain (b) the critical frequencies
(c) the roll-off rate (d) the input capacitance
- (vi) The efficiency of a power amplifier is the ratio of the power delivered to the load to the
(a) input signal power (b) power dissipated in the last stage
(c) power from the dc power supply (d) none of these answers
- (vii) Crossover distortion is a problem for
(a) class A amplifiers (b) class AB amplifiers
(c) class B amplifiers (d) all of these amplifiers
- (viii) The main feature of a crystal oscillator is
(a) economy (b) beauty (c) stability (d) high frequency
- (ix) In a Wien-bridge oscillator, if the resistances in the positive feedback circuit are decreased, the frequency
(a) decreases (b) increases (c) remains the same (d) none of these answers
- (x) The triac is
(a) like a bidirectional SCR (b) a four-terminal device
(c) not a thyristor (d) both answers (a) and (b)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Electronic Devices and Circuits

MAX. TIME: 15 Min.

Course Code: PHY-304-A Part-I (Compulsory)

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- (i) If both the emitter-base and the collector-base junctions of a BJT are forward biased, the transistor is in the
(a) active region (b) cut-off region (c) saturated region (d) inverse mode
- (ii) When operated in cutoff and saturation, the transistor acts like
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- (iii) The input resistance of a common-collector amplifier is
(a) very low (b) very high (c) the same as a CE (d) none of these answers
- (iv) The low-frequency response of an amplifier is determined by the
(a) coupling capacitors (b) bias circuit
(c) transistor capacitances (d) all of these answers
- (v) The bandwidth of an amplifier is defined by
(a) the midrange gain (b) the critical frequencies
(c) the roll-off rate (d) the input capacitance
- (vi) The efficiency of a power amplifier is the ratio of the power delivered to the load to the
(a) input signal power (b) power dissipated in the last stage
(c) power from the dc power supply (d) none of these answers
- (vii) Crossover distortion is a problem for
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- (viii) The main feature of a crystal oscillator is
(a) economy (b) beauty (c) stability (d) high frequency
- (ix) In a Wien-bridge oscillator, if the resistances in the positive feedback circuit are decreased, the frequency
(a) decreases (b) increases (c) remains the same (d) none of these answers
- (x) The triac is
(a) like a bidirectional SCR (b) a four-terminal device.
(c) not a thyristor (d) both answers (a) and (b)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Pakistan Studies-V

Course Code: PST-301 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i. When did fight the first battle of Panipat?
(1) 1527 (2) 1526 (3) 1528 (4) 1529
- ii. What is the real name of Sher Shah?
(1) Sikandar Khan (2) Hassan Khan (3) Freed khan (4) Kutub khan
- iii. Which tax did Akbar omit of non Muslims?
(1) Yatra tax (2) Darga Pooja Tax (3) Jazya (4) darshan
- iv. Who introduced the concept of Deen-e-Elahi?
(1) Babur (2) Akbar (3) Hamayun (4) Jehangir
- v. War of Knwaha has been fought between?
(1) Babur or Dolat khan (2) Babur or Rana Sanga
(3) Babur or IBraheem (4) Kamran or Hamyaun
- vi. Who is the Crown Honour after Jehangir?
(1) Shah Jahan (2) Aurayzeb
(3) Akbar (4) Babur
- vii. Who build the Badshahi Mosque In Lahore?
(1) Akbar (2) Sher Shah (3) Aurangzeb (4) Jehangir
- viii. Who wrote "Ayne-Akbari"?
(1) Abu-al-fazal (2) Faiziy (3) Abdul Qadir
(4) Shaikh banaras
- ix. In which language the first translation of Tuzk-e-Barbi?
(1) English (2) Hindi (3) Parsion (4) Urdu
- x. Who build the "Qilla Rohtass"?
(1) Sher Shah (2) Hamayun (3) Akbar (4) Aurangzeb



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Political Ideologies

MAX. TIME: 15 Min.

Course Code: POL-304 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Choose the correction Option.

(1 x 5 = 5)

1. The term law has derived from origin
(a) Greek (b) french (c) latin (d) none
2. What is the most scientific comprehensive and logical version of socialism?
(a) Marxism (b) class conflict (c) communism manifesto (d) none
3. A system of government by the whole population or all the eligible members of a state, typically through elected representatives is known as
(a) Capitalism (b) Democracy (c) nationalism (d) none
4. an economic and political system in which a country's trade and industry are controlled by private owners for profit, rather than by the state
(a) Communism (b) capitalism (c) social theory (d) none
5. Two party system is To political stability and parliamentary democracy.
(a) Supportive (b) injurious (c) not relevant (d) none of above

Q.2. Choose correct or incorrect statement

(1 x 5 = 5)

1. Referendum and initiative are two methods of direct legislature.....
2. If the head of state is also democratically elected then it is called a democratic republic.....
3. Violence, coercion and other illegal acts are the modes of operation of a democratic government.....
4. Mode of action of anomic groups is characterized by violence and other illegal acts.....
5. European socialist movements fully supported Marxism.....



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Research Methodology
Course Code: SOC-301 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. If an investigator defines aggression in terms of frequency and intensity of shock administered to another person, he or she has used
 - a. rationalism
 - b. scientific technique
 - c. reference to extraneous variable
 - d. Operational definition
2. In the hypothesis “ Men earn more annual income than women”, Independent variable is
 - a. men
 - b. women
 - c. gender
 - d. annual income
3. _____ usually generates hypotheses.
 - a. Basic research
 - b. Quantitative research
 - c. applied research
 - d. Qualitative research
4. The goals of scientific method are
 - a. Description
 - b. prediction
 - c. Understanding
 - d. all of the above
5. FGD stands for
 - a. Focus group discussion
 - b. false group disorder
 - c. Fallacy grading order
 - d. none of the above
6. Which of the following is not a problem in face to face interviewing?
 - a. Safety
 - b. Problems in answering questions in the intended order
 - c. Expense
 - d. Difficult to supervise interviewers
7. Case studies tend to have:
 - a. both practical and statistical significance
 - b. statistical significance even though they do not have practical significance
 - c. practical significance even though they do not have statistical significance
 - d. neither practical nor statistical significance
8. Double-barreled questions should be avoided because:
 - a) They confuse respondents by asking about two different things
 - b) They rely too much on a respondent's memory
 - c) They are too abstract and general in scope
 - d) They make the questions too long
9. When all participants receive all treatment conditions, the study has risk of:
 - a) Order effects
 - b) Carryover effects
 - c) History effects
 - d) a and b
10. Experiments allow researchers to:
 - a. observe naturally occurring behavior.
 - b. answer cause-and-effect questions about the relationship between variables.
 - c. answer questions about the existence of a relationship between two variables.
 - d. eliminate experimenter bias



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Public Administration
Course Code: POL-305 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- 1) Administrative accountability is established in government organizations by _____
(a) Executive (b) Legislature
(c) Judiciary (d) All the three above
- 2) Financially the performance of public corporations in Pakistan during the last decade has been _____
(a) Excellent (b) Good
(c) Satisfactory (d) Poor
- 3) Public Personnel Management in Pakistan is based on the principle of _____
(a) Spoils (b) Patronage
(c) Merit (d) Give and take
- 4) Performance budgeting is based on _____
(a) Items of expenditure (b) items of investment
(c) Objectives of expenditure (d) plan of implementation
- 5) Formal relationship in an organization is based on _____
(a) Friendship (b) Peer groups
(c) Authority on subordinates (d) Rules and Regulations
- 6) Big government is needed because of _____
a) Increase in population b) increase in budget c) Increase in government employees. d) None of the above
- 7) Ombudsman function is _____
a) Administrative control on finances b) judicial control on finance c) Legislative control on finance d) None of the above
- 8) Any organization is based on _____
a) Profit b) Loss c) Hierarchy d) None of the above
- 9) Red-tapes is related to _____
a) Media b) Private organization c) bureaucracy d) None of the above
- 10) Public policy is headed by _____
a) Government institution b) Private organizations c) independent organizations
d) None of the above



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Social Psychology
Course Code: SOC-302 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Which of the following social psychology perspectives involves learning behaviors based on the way that a person thinks about the behavior of others?
 - a) Evolutionary
 - b) social cognition
 - c) social learning
 - d) sociocultural
2. When a person goes along with the group because he or she believes the group is right, or knows better than they, they are exhibiting what type of conformity?
 - a) informative
 - b) normative
 - c) experiential
 - d) knowledge-based
3. The application of psychological theories, methods and techniques to solve practical human problems describes an area of psychology known as:
 - a) Social psychology
 - b) Para-psychology
 - c) Applied psychology
 - d) Humanistic psychology
4. In ancient times, who supposedly inhibited the body and soul of a “crazy” person?
 - a) God
 - b) A saint
 - c) The devil
 - d) None of these
5. The group in an experiment which receives no treatment is called:
 - a) Control group
 - b) Experimental group
 - c) No group
 - d) None of the above

P.T.O.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Project Planning & Management
Course Code: SOC-303 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Which of the following refers to a narrative description of the work to be accomplished?
 - a) The statement of work (SOW)
 - b) The project specifications
 - c) The milestone schedule
 - d) The work breakdown structure (WBS)
2. Scope of a project is the total of all of a project's products and their requirements or features
 - a) Sum
 - b) Product
 - c) Sum and product
 - d) None of the above
3. Which of the following life cycle phases includes brainstorming and common sense at planning stage?
 - a) Conceptualization
 - b) Feasibility
 - c) Preliminary planning
 - d) Detail planning
4. Quality assurance is:
 - a) Detection based
 - b) Inspection based
 - c) Prevention based
 - d) People based
5. The three general preconditions for achieving lasting success as a project manager are:
 - a) Technical Skills, Ability, Human Skills and Design Skill
 - b) Ability, Motivation to manage and Opportunity
 - c) Motivation to manage, Opportunity and Conceptual Skill
 - d) Ability, Capacity and Supervision

P.T.O.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Sociology of Globalization
Course Code: SOC-304 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- 1- The sole multilateral organization that deals with internal trade laws and rules is
 - a. World Health Organization
 - b. International Trade and Tariff Organization
 - c. World Trade Organization
 - d. None of the above.

- 2- Globalization means high _____ interdependence internationally.
 - a. Economic
 - b. Political
 - c. Social
 - d. All of the above.

- 3- According to World System Theory _____
 - a. Developed world has advanced owing to the resources of developing.
 - b. Developed world helps poor countries to develop
 - c. Development for all can only be achieved through absolute globalization
 - d. All of above.

- 4- A region that applies no interest on trade within countries is known as _____
 - a. Free trade zone
 - b. Convenient trade zone
 - c. Low Tariff Trade Zone.
 - d. None of above.

- 5- An investment that comes through foreign country is known as _____
 - a. Direct foreign investment
 - b. Foreign Direct investment
 - c. Foreign Investment
 - d. International Investment

P.T.O.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Sociology of Development
Course Code: SOC-305 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Poverty is?
 1. Lack of money
 2. Lack of assets
 3. Lack of decent living standards
 4. All of these are correct
2. Current population of the Pakistan is?
 1. 207,714,520
 2. 207,134,521
 3. 206,774,420
 4. 207,774,520
3. Dependency theory is an?
 1. Underdevelopment theory
 2. Development theory
 3. Revolution theory
 4. None of these
4. GDP stands for?
 1. Gains of domestic power
 2. Gain and profit
 3. Gross domestic product
5. What is not the dimension of development?
 1. Political
 2. Running
 3. Economic
 4. Social
6. What is environmental development?
 1. Sustainable environment
 2. Biodiversity
 3. Ecosystem
7. Which theorist saw the division of labor as harmful to the workforce?
 1. Marx
 2. Durkheim
 3. Simmel
 4. Weber
8. Underdevelopment school of thought find..... work to be of great value?
 1. Max Weber
 2. Karl Marx
 3. Lerner
 4. None of the above
9. The purchasing power of a person or a family as relative to the people in the same society is?
 1. Poverty
 2. Power
 3. Absolute poverty
 4. Relative poverty
10. Modernization theory is considered?
 1. Asian philosophy
 2. American Sociology
 3. Eurocentric
 4. Politically biased



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Sociology of Education
Course Code: SOC-306 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i). Theories concerned with what is happening in the classroom and with teacher labeling of students are
 - a). Classical theories
 - b). Functionalist theories
 - c). Interactionist theories
 - d). Conflict theories
- ii). Specialization and further distinction in making a living within an industrial economy makes
 - a). a demand for better man-machine facilities
 - b). a demand for specialized courses and training programs
 - c). a greater demand for better education
- iii). Which of the following does not influence the process of education?
 - a). the culture of the society and its social institutions
 - b). political organization of the society
 - c). the upper middle class of the society
- vi). Bourdieu attributed the reproduction of class to:
 - a). Cults of the capital
 - b). Capital culture
 - c). Cultural capital
 - d). Socialization
- v). Which of the following perspectives emphasizes the idea that people learn attitudes and roles through shared language?
 - a). Psychoanalytical theory
 - b). Differential association theory
 - c). Structural theory
 - d). Symbolic interactionism
- vi). The introduction of market principle in education largely results in
 - a). more funding for students in higher education
 - b). a reduction in parental choice of school
 - c). increased state regulation through national testing and inspections
- vii). Application of principles of Sociology to education is known as
 - a). Sociology of education
 - b). Educational Sociology
 - c). Social science of education
- viii). Schools are social institutions because they
 - a). Preserve and instill in future generations the knowledge, ideas and customs of culture
 - b). suggest ways and means of social progress
 - c). are established by the society
- ix). Educational sociology is the study of
 - a). norms and values
 - b). important dimensions of sociology that are significant for educative process
 - c). promotion of sociology through education
- x). What does Durkheim believe the role of education is
 - a). to teach people to be submissive to the authority
 - b). to teach norms and values of the society
 - c). to teach norms and values to create social cohesion
 - d). to teach the demands of job market



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Parametric and Nonparametric Tests (Theory)

Course Code: STAT-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(5 x 4 = 20)

- a) How do non-parametric tests differ from parametric tests? Discuss the advantages of non-parametric tests over parametric tests.
- b) Write the procedure of a non-parametric test which is equivalent to paired samples T-test.
- c) What is the Power of the test
- d) Write the procedure of Bartlett test
- e) What is the purpose of goodness-of-fit test? Describe three situations where this test might be used appropriately.

Q.3.

Use the median test at the $\alpha = 0.05$ level, to test the null hypothesis that the two samples are drawn from populations with the same median.

Sample 1	92, 63, 30, 78, 24, 19, 26, 79, 54, 57, 97, 46, 58, 74, 77, 80, 93, 99, 78, 50.
Sample 2	77, 87, 98, 62, 76, 47, 66, 83, 72, 80, 53, 80, 48, 75, 76, 78, 97, 53, 64, 67.

(8)

Q.4.

- a) Discuss fully the procedure and rationale of a two-sample median test.
- b) Using the data in question 24.12, test at $\alpha = 0.05$ the hypothesis that men and women come from populations with the same median, applying the median test.

(10)

Q.5.

- a) A random sample of size 4 is drawn from a normal population with known variance 15. A one-tailed test of the form $H_0: \mu \leq 30$ against $H_1: \mu > 30$ at the 5% level of significance is performed. Calculate the probabilities of **type II error (β)** for the values of $\mu = 32, 36$ and 34.5 in the alternative hypothesis. Also calculate the powers of the test.

(5)

- b) The various sums for two sets of data, each of 4 observations are as follows:

Set	$\sum X$	$\sum Y$	$\sum XY$	$\sum X^2$	$\sum Y^2$
A	8	37	76	18	349
B	15	47	179	59	557

- i) Find the estimates of β_1 and β_2 , the regression coefficients of two linear regression lines.
- ii) Construct the 95% confidence interval for $\beta_1 - \beta_2$ and test the hypothesis that $H_0: \beta_1 = \beta_2$ against the $H_1: \beta_1 \neq \beta_2$ at the 0.05 level of significance

(7)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Parametric and Nonparametric Tests (Theory)
Course Code: STAT-301 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- Which of the following value is impossible for a Chi-square statistic?
(a) Greater than zero (b) Less than zero (c) Equal to zero (d) Not equal to zero
- The value of Chi-square statistic is always zero if:
(a) $\sum f_o = \sum f_e$ (b) $f_o = f_e$ (c) $f_o > f_e$ (d) $f_o < f_e$
- The non-parametric equivalent of an unpaired samples t-test is
a) Sign test b) Wilcoxon signed rank test c) Mann-whitney U test d) Kruskal Wallis test
- The Mann-Whitney U test is preferred to a t-test when
a) Data are paired b) Sample sizes are small c) The assumption of normality is not met d) Samples are dependent
- To perform a Run test for randomness, the data must be
a) Qualitative b) Quantitative c) Divided into at least two categories d) Divided into exactly two categories
- The choice of one-tailed test and two tailed test depends upon
a) Null hypothesis b) Alternative hypothesis c) None of these d) Composite hypothesis
- The range of test statistic-Z is
a) 0 to ∞ b) 0 to 1 c) $-\infty$ to $+\infty$ d) -1 to +1
- When testing for randomness, we can use
a) Mann-Whitney U test b) Sign test c) Runs test d) None of these
- A passing student is failed by an examiner, it is an example of
a) Type I error b) Type II error c) Best decision d) All of the above
- Homogeneity of several variances can be tested by
(a) Bartlett's test (b) Fisher's exact test (c) F test (d) T-test.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Design and Analysis of Experiments (Theory)
Course Code: STAT-303 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i) The basic principles of experimental designs consist of:
a) Randomization b) Replication c) Local Control d) All of these
- ii) The smallest subdivision of the experimental material is called:
a) Treatments b) Experimental Unit c) Experimental Error d) None of these
- iii) In a completely randomized design, treatments are assigned to experimental units at random.
a) Completely b) Partially c) Systematically d) None of these
- iv) The assumptions under analysis of variance consist of:
a) Normality and Independence c) Linearity and Additivity
b) Both (a) and (b) d) None of these
- v) The following design provides the maximum number of degrees of freedom for error sum of squares:
a) Completely Randomized Design c) Completely Randomized Block Design
b) Latin Square Design d) None of these
- vi) Multiple comparisons tests are applicable when:
a) Null Hypothesis about equality of means is rejected
b) Null Hypothesis about equality of means is accepted
c) Does not depend upon the rejection or acceptance of Null Hypothesis
d) None of these
- vii) One can estimate the missing observation through covariance technique by simply changing the sign of....
a) b b) r c) Correction Factor d) None of these
- viii) The efficiency of two experimental designs can simply be measured through of error variances.
a) Addition b) Subtraction c) Multiplication d) Ratio
- ix) Two Latin squares are if each letter of one square design occurs exactly once with every letter of the other square when they are superimposed.
a) Orthogonal b) Factorial Designs c) Efficient d) None of these
- x) A contrast iscombination of treatments.
a) Linear b) Exponential c) Quadratic d) None of these



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Design and Analysis of Experiments (Theory)
Course Code: STAT-303 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2. Differentiate between the following terms:

(5x4=20)

- i) Fixed Effects and Random Effects
- ii) Analysis of Variance and Covariance
- iii) Completely Randomized and Completely Randomized Block Designs
- iv) Replication and Randomization
- v) Latin Square and Graeco Latin Square Designs.

- Q3. a) In an experiment 'k' treatments and 'r' blocks are selected at random from a large number of treatments and blocks. Develop expected mean squares by clearly indicating the assumptions used.
- b) Given the following ANOVA for a CR design for four treatments: (6+4)

S.O.V	d.f.	SS
Treatments	3	1.1986
Error	36	1.0323

Test the significance of difference between treatment means by using Duncan's Multiple Range Test when treatment means for four treatments were 1.464, 1.195, 1.325, and 1.66.

- Q4. a) Seven treatments arranged in six randomized complete blocks gave the following sum of squares and products:

S.O.V	XY	YY	XX
Blocks	-111.65	6.31	7472.6
Treatments	3598.05	112.86	116020.3
Error	682.20	23.23	28665.1

- i) Is the regression of Y on X significant at 0.05 level of significance.
- ii) Construct ANOVA and write the inference.

- b) The analysis of Variance for a RCB design produced the table shown below: (6+4)

S.O.V	d.f.	SS	MS	F-Ratio
Treatments	3	28.2	-	
Blocks	5	-	13.80	
Error	-	34.1	-	

Complete the ANOVA table and test the significance of difference among the treatment means.

- Q5. a) Derive formula for estimating N missing observations in a Latin Square Design when values are missing in different columns, different rows and different treatments.
- b) In an experiment to examine the effects of row spacing on the yield of wheat, 8 row spacing were used and 6 blocks of an experiment were used. The sum of squares for Total, Blocks and Treatments were 2195.48, 617.86 and 1283.65 respectively. Find the relative efficiency of this design with the design in which blocks are ignored. (7+3)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Sampling Techniques (Theory)
Course Code: STAT-305 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. A complete list of all the units in the population is called -----
A. Sampling unit
B. Population unit
C. Sampling frame
D. None of the above
2. When the sample survey becomes a census survey, the sampling error becomes -----
A. Zero
B. One
C. Constant
D. None of the above
3. The Simple Random Sampling is a ----- technique.
A. Probability Sampling
B. Non-Probability Sampling
C. Both (A) & (B)
D. None of the above
4. Suppose we select every fourth invoice in a file. What type of sampling is this?
A. Simple Random
B. Cluster
C. Stratified
D. Systematic
5. Sampling in which sampling unit can be repeated more than once is called -----
A. Sampling with replacement
B. Sampling without replacement
C. Both (A) & (B)
D. None of the above
6. If a sample is drawn from each stratum minimizing the probabilities of non-preferred samples, it is known as:
A. Selection with proportional allocation
B. Controlled selection
C. Haphazard selection
D. None of the above
7. In systematic sampling, if N is not an integral multiple of nk , we use -----
A. Linear systematic sampling
B. Circular systematic sampling
C. Centrally Located systematic sampling
D. None of the above
8. For a population that is not normally distributed, the distribution of the sample means will -----
A. be negatively skewed
B. approach the normal distribution.
C. be positively skewed.
D. never approaches normal distribution.
9. The stratification after the selection of sample is called:
A. Two-way stratification
B. Deep stratification
C. Post stratification
D. None of the above
10. ----- is the standard deviation of a sampling distribution.
A. Sample standard deviation
B. Replication error
C. Meta error
D. Standard error



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Probability Theory (Theory)

Course Code: STAT-307 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2 Write short answer on the following questions. (20)

- a) Describe the classical, relative frequency, and subjective concepts of probability.
- b) If $P(A) = 0.3$, $P(B) = 0.4$, and $P(A \text{ and } B) = 0.2$, are A and B independent.
- c) How does conditional probability relate to the concept of independence?
- d) Differentiate between independent and mutually exclusive events. Are independent events mutually exclusive?
- e) Find the probability of being dealt a bridge hand of 13 cards containing 5 spades, 2 hearts, 3 diamonds and 3 clubs.
- f) When flipping an unbiased coin, determine the probability that the 7th head occurs on the 13th trial.
- g) In Bayes theorem, how does the prior probability differ from the revised probability?
- h) Describe the significance of moments in probability distribution.
- i) What is the meaning of the expected value of a probability distribution?
- j) What are the four properties that must be present in order to use Poisson distribution?

Q.3.a) A patient is thought to have one of three diseases A, B and C, whose probabilities under given conditions are 0.5, 0.3 and 0.2 respectively. A test is carried out to help the diagnosis and it yields a positive result with a probability of 0.1 for disease A, a probability of 0.2 for disease B and a probability of 0.9 for disease C. The test is conducted 6 times and the results are positive 4 times and negative twice. What is the probability of each disease after testing?

b) A bag contains 3 red 5 black balls and another 4 red and 7 black balls. A ball is drawn from a bag selected at random. Find the probability that it is red.

(7+3)

Q.4 Compute the probability generating function, cumulants, factorial cumulants, coefficient of skewness and kurtosis of negative binomial distribution.

(10)

Q.5.a) Describe the geometric experiment and show that its mean greater than its variance.

b) The probability that a person will install a black phone in a residence is estimated to be 0.3. Find the probability that the 10th phone installed in a new subdivision is the 1st black phone.

c) Determine the probability that the income tax authorities will catch 3 income tax returns with illegitimate deductions, if it randomly selects 6 returns among 20 income tax returns of which 8 contain illegitimate deductions.

(4+3+3)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Statistical Computer Packages
Course Code: STAT-309 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i. SPSS data file extension is:
a) .sps b) .sav c) .spo d) .xls
- ii. To find the Mode for a variable, which set of instructions should you give SPSS?
a) Analyze → Descriptive Statistics → Explore → Statistics → Descriptives → ok.
b) Graphs → Descriptive Statistics → Frequencies → Statistics → ok.
c) Analyze → Descriptive Statistics → Descriptives → Options → ok
d) None of the Above
- iii. Types of Blood Group is an example of:
a) Nominal Data b) Ordinal Data c) Interval Data d) Ratio Data
- iv. In Testing of Hypothesis problems, One may reject the null hypothesis, when:
a) $p > \alpha$ b) $p < \alpha$ c) $p \leq \alpha$ d) $p \geq \alpha$
- v. In an experiment to determine if antibiotics increase the final dressed weight of cattle, the following were measured on each animal in the study.

sex, initial weight, weight gain, grade of meat.
where grade is recorded as (A, B, or C). The scales of measurement of these variables are:
a) Nominal, ratio, interval, nominal
b) Nominal, ratio, ratio, nominal
c) Nominal, ratio, ratio, ordinal
d) Ordinal, ratio, ratio, ordinal
- vi. The appropriate graph for a continuous nature of data is:
a) Histogram b) Simple Bar Chart c) Component Bar Chart d) Pie Chart
- vii. In SPSS v 20 or above, one can define a variable name of maximum....characters?
a) 8 b) 16 c) 32 d) 64
- viii. The first character of variable name defined in SPSS should be.
a) Numeric b) Alphabet c) Special Character d) None of these
- ix. Shoe-size is an example of:
a) Nominal Data b) Ordinal Data c) Interval Data d) Ratio Data
- x. Time on a Clock is an example of:
a) Nominal Data b) Ordinal Data c) Interval Data d) Ratio Data



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Statistical Computer Packages
Course Code: STAT-309 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers.

(4 x 5 = 20)

- a) State the Rules for defining a variables Name in SPSS.
- b) Nominal, Ordinal, Interval and Ratio Scale of Measurement
- c) Use of Compute Command in SPSS
- d) Assumptions of Parametric Tests.

SUBJECTIVE

Note: You are required to justify your answers in this section by stating hypothesis, statistics, reference of graphs etc. on your answer sheet.

Q3: The following is the SPSS output from a data containing the Horsepower of 156 cars.

		Statistic	Std. Error
Horsepower	Mean	185.95 ^a	4.540
	95% Confidence Interval for Mean		
	Lower Bound	176.98	
	Upper Bound	194.92	
	5% Trimmed Mean	183.04	
	Median	177.50	
	Variance	3214.926	
	Std. Deviation	56.700	
	Minimum	55	
	Maximum	450	
	Range	395	
	Interquartile Range	67	
	Skewness	1.001	.194
	Kurtosis	2.407	.386

Runs Test	
	Horsepower
Test Value ^a	178
Cases < Test Value	78
Cases >= Test Value	78
Total Cases	156
Number of Runs	62
Z	-2.731
Asymp. Sig. (2-tailed)	.006

a. Median

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Horsepower	.077	156	.026	.949	156	.000

	N	Mean	Std. Deviation	Std. Error Mean
Horsepower	156	185.95	56.700	4.540

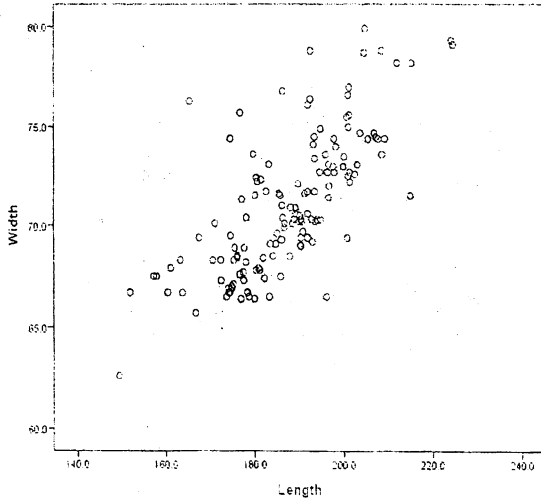
One-Sample Test						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Horsepower	-3.095	155	.002	-14.051	-23.02	-5.08

Study the above output carefully answer the following questions:

(2+2+2)

- a) Test the normality of the data.
- b) Test the randomness of the data.
- c) Can we say that the average horsepower of the cars is 200?

Q4. The following is the output of bivariate data of 156 cars width and length:



Correlations			
		Length	Width
Length	Pearson Correlation	1	.710
	Sig. (2-tailed)		.000
	N	156	156

Correlations				
			Length	Width
Spearman's rho	Length	Correlation Coefficient	1.000	.716 ^{**}
		Sig. (2-tailed)		.000
		N	156	156

- Can we say that the relationship between cars width and length is linear?
- Test the significance of the relationship between cars width and length by using an appropriate method? (2+3)

Q4: a) The following is the SPSS output of a data set measuring an association of consumer's satisfaction between color and taste of soft drinks.

		Taste					
		Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied		
Color	White	Count	108	68	60	47	283
		Expected Count	102.2	65.4	69.1	46.3	283.0
		% within Color	38.2%	24.0%	21.2%	16.6%	100.0%
		% within Taste	77.7%	76.4%	63.8%	74.6%	73.5%
	% of Total	28.1%	17.7%	15.6%	12.2%	73.5%	
	Black	Count	10	4	18	4	36
		Expected Count	13.0	8.3	8.8	5.9	36.0
		% within Color	27.8%	11.1%	50.0%	11.1%	100.0%
		% within Taste	7.2%	4.5%	19.1%	6.3%	9.4%
	% of Total	2.6%	1.0%	4.7%	1.0%	9.4%	
	Green	Count	21	17	16	12	66
		Expected Count	23.8	15.3	16.1	10.8	66.0
% within Color		31.8%	25.8%	24.2%	18.2%	100.0%	
% within Taste		15.1%	19.1%	17.0%	19.0%	17.1%	
% of Total	5.5%	4.4%	4.2%	3.1%	17.1%		
Total	Count	139	89	94	63	385	
	Expected Count	139.0	89.0	94.0	63.0	385.0	
	% within Color	36.1%	23.1%	24.4%	16.4%	100.0%	
	% within Taste	100.0%	100.0%	100.0%	100.0%	100.0%	
% of Total	36.1%	23.1%	24.4%	16.4%	100.0%		

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.197	.017
N of Valid Cases		385	

- State the null and alternative hypothesis for the association for satisfaction between Color and Taste of the soft drink.
- What percentage of consumers was very satisfied with the black color of the soft drink?
- What is the decision regarding null hypothesis? (1+1+4)

b) We find some depressed people and check that they are all equivalently depressed to begin with. Then we allocate each person randomly to one of three physical exercise groups: no exercise; 20 minutes of jogging per day; or 60 minutes of jogging per day. The following output of allocated groups is generated through SPSS

Levene Statistic	df1	df2	Sig.
1.708	2	21	.205

	Exercise Group
Chi-Square	7.290
df	2
Asymp. Sig.	.026

Kruskal Wallis Test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1306.083	2	653.042	4.414	.025
Within Groups	3107.250	21	147.964		
Total	4413.333	23			

- i) Test the homogeneity of exercise groups
- ii) Can we conclude that there is no significant difference among the exercise groups (2+2)

Q5. The administrator of a new paralegal program at Seagate Technical College want to estimate the grade point average in the new program. He thought that high school GPA, the verbal score on the Scholastic Aptitude Test (SAT) and the mathematics score on the SAT would be good predictors of paralegal GPA. The following output is generated from the 9 students recorded data using SPSS:

Correlations

		High School GPA	SAT Verbal	SAT Math	Paralegal GPA
High School GPA		1	.609	.636	.911
	Sig. (2-tailed)		.082	.066	.001
	N	9	9	9	9
SAT Verbal		.609	1	.599	.616
	Sig. (2-tailed)	.082		.088	.077
	N	9	9	9	9
SAT Math		.636	.599	1	.487
	Sig. (2-tailed)	.066	.088		.183
	N	9	9	9	9
Paralegal GPA		.911	.616	.487	1
	Sig. (2-tailed)	.001	.077	.183	
	N	9	9	9	9

Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.928 ^a	.861	.778	.37513	1.974

a. Predictors: (Constant), High School GPA, SAT Verbal, SAT Math

b. Dependent Variable: Paralegal GPA



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Cell and Molecular Biology-II
Course Code: ZOOL-301 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (0.5x20=10)

1. A nucleoside is similar to nucleotide except
 - a. Nitrogenous base
 - b. Ribose
 - c. Phosphate
 - d. All of above
2. In prokaryotes, during replication, supercoiles are formed which are removed by the action of
 - a. Ligase
 - b. Topoisomerase
 - c. Telomerase
 - d. helicase
3. In eukaryotes the RNA polymerase required for the transcription of t-RNA is
 - a. I
 - b. II
 - c. III
 - d. Sigma factor
4. During translation, translocation of ribosomes is done by
 - a. EFTS
 - b. EFTU
 - c. EFG
 - d. Chain terminator codons occur
5. Sigma factor is a component of
 - a. DNA ligase
 - b. RNA polymerase
 - c. DNA Polymerase
 - d. Reverse transcriptase
6. A promoter on DNA
 - a. Initiates transcription
 - b. Regulates termination
 - c. Codes for RNA
 - d. Transcribes repressor
7. Thymine dimers are often corrected by light induced repair mechanism. The enzyme involved in the process is
 - a. Photolyase
 - b. Photoligase
 - c. Endonuclease
 - d. Exonuclease
8. Which of the following DNA polymerase is involved in replication of mitochondrial DNA.
 - a. DNA polymerase alpha
 - b. DNA polymerase beta
 - c. DNA polymerase gamma
 - d. DNA polymerase delta
9. Which of the following enzymes are used to join DNA fragments.
 - a. DNA ligase
 - b. DNA polymerase
 - c. Telomerase
 - d. Endonuclease
10. DNA template for RNA synthesis has the following order of bases AGCTTCGA. What will be the order of bases in mRNA
 - a. TCGAAGCT
 - b. UGCUAGCT
 - c. TCGAUCGU
 - d. UCGAAGCU
11. What would be the effect on the PCR reaction if any of the following circumstances arose:
1) there are no primers in the reaction, 2) there are no dNTPs in the reaction, 3) there is no Taq polymerase in the reaction?
 - a. PCR would proceed normally
 - b. Non-specific PCR of random templates will occur
 - c. The reaction will cease after a few cycles
 - d. The PCR reaction will not commence

P.T.O.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Biochemistry-II
Course Code: ZOOL-303 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i The action of lipase in the intestine is greatly enhanced by _____ of lipids.
A. diffusion B. storage
C. micelle D. fractionation
- ii The free energy change for a reaction depends upon the _____ of initial reactants and final products
A. pH B. concentration
C. Both A and B D. None of these
- iii Conversion of glucose into fructose is
A. deamination B. epimerization
C. isomerization D. carboxylation
- iv Ammonia produced in humans is disposed off in the form of
A. urea B. ammonia
C. uric acid D. all of these
- v Carbamoyl phosphate synthetase-I present
A. cytoplasm B. ribosomes
C. mitochondria D. None of these
- vi The ammonia transport from muscle to liver for urea formation through
A. Aspartate B. Alanine glucose cycle
C. Both A and B D. None
- vii Which one participates in reactions that produce a carbon-carbon double bond
A. NAD⁺ B. FAD⁺
C. NADP D. none
- viii Lipoate carries both electrons and acyl molecules because of its property of
A. oxidation B. reduction
C. Both A and B D. None of these
- ix Maximum energy produced by
A. Fats B. Carbohydrates
C. Protein D. Nucleic acid
- x The stable ring formation in D-Glucose involves
A. C-1 and C-4 B. C-1 and C-2
C. C-1 and C-5 D. C-2 and C-5



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Animal Physiology – II
Course Code: ZOOL-305 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i. Which one of the following pair of endocrine glands secrete steroid hormones?
 - a. Thymus and testes
 - b. Adrenal and ovary
 - c. Pancreas and parathyroid
 - d. Adrenal and Parathyroid
- ii. Blood calcium level is lowered by the action of _____.
 - a. Thyroxine
 - b. Calcitonin
 - c. Parathormone
 - d. both b and c
- iii. Which one of the following pair is incorrectly matched?
 - a. Glucagon-beta cells (source)
 - b. Insulin-diabetes mellitus (disease)
 - c. Somatostatin-delta cells (source)
 - d. Corpus luteum-relaxin (secretion)
- iv. Which one of the following sets of ions are necessary in the chemical events for muscle contraction?
 - a. Na^+ and K^{++}
 - b. Ca^{++} and Mg^{++}
 - c. Na^+ and Ca^{++}
 - d. Na^+ and Mg^{++}
- v. Fertilizin is a chemical substance produced from the following?
 - a. Mature eggs
 - b. Acrosome
 - c. Polar bodies
 - d. Middle piece of sperm
- vi. Sertoli cells are found in
 - a. Liver
 - b. Seminiferous tubules
 - c. Heart
 - d. Germinal epithelium
- vii. If hydrostatic pressure is used to move a molecule through a membrane, this is termed
 - a. Filtration
 - b. Osmosis
 - c. Active transport
 - d. Endocytosis
- viii. Which one of the following hormones does not need second messenger?
 - a. FSH
 - b. LH
 - c. Glucagon
 - d. Estrogen
- ix. The amount of pressure required to stop osmosis is called _____.
 - a. Osmotic pressure
 - b. Pressure difference
 - c. Active transport
 - d. Osmotic balance
- x. The normal polarized state of -90 mV is lost in which stage?
 - a. Repolarization
 - b. Depolarization
 - c. Resting
 - d. Refractory period



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Biostatistics

Course Code: ZOO-307 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2	<p>Give short answer of following questions</p> <ol style="list-style-type: none"> If we toss three coins, what is the probability all three coins will have heads? Define the term replication. Differentiate between primary and secondary data. What is the relationship between variance and standard deviation? Differentiate between type-I and type-II error. What are parameters of binomial and hypergeometric distribution? Define attribute by giving example. What is the use of one way ANOVA. Give an example Give formula of unpaired t-test. Define independent variable with suitable example. 	2x10=20																						
Q.3	<p>Do the following numbers indicate a 9:3:3:1 ratio? Explain it with detail</p> <p>370:100: 90: 40</p>	10																						
Q.4	<p>Calculate the variance, standard deviation, standard error of the mean and coefficient of variation of the data given below.</p> <table border="1" data-bbox="214 1075 908 1612"> <thead> <tr> <th>No. of Pods / Plant</th> <th>No of Plants</th> </tr> </thead> <tbody> <tr><td>15-17</td><td>5</td></tr> <tr><td>18-20</td><td>6</td></tr> <tr><td>21-23</td><td>8</td></tr> <tr><td>24-26</td><td>12</td></tr> <tr><td>27-29</td><td>22</td></tr> <tr><td>30-32</td><td>18</td></tr> <tr><td>33-35</td><td>15</td></tr> <tr><td>36-38</td><td>9</td></tr> <tr><td>39-41</td><td>5</td></tr> </tbody> </table>	No. of Pods / Plant	No of Plants	15-17	5	18-20	6	21-23	8	24-26	12	27-29	22	30-32	18	33-35	15	36-38	9	39-41	5	10		
No. of Pods / Plant	No of Plants																							
15-17	5																							
18-20	6																							
21-23	8																							
24-26	12																							
27-29	22																							
30-32	18																							
33-35	15																							
36-38	9																							
39-41	5																							
Q.5	<p>In a forest community the earthworm population was sampled by excavating ten random quadrats (25 x 25 x 30 cm). The number of earthworms per Quadrat are given below. Test whether the distribution of the earthworm population is in accordance with the null hypothesis or deviates from it (null hypothesis states that all classes have equal probability)</p> <table border="1" data-bbox="214 1800 1239 1921"> <thead> <tr> <th>Qr. Nos</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>No of earthworms.</td> <td>30</td> <td>35</td> <td>41</td> <td>25</td> <td>29</td> <td>40</td> <td>30</td> <td>37</td> <td>31</td> <td>32</td> </tr> </tbody> </table>	Qr. Nos	1	2	3	4	5	6	7	8	9	10	No of earthworms.	30	35	41	25	29	40	30	37	31	32	10
Qr. Nos	1	2	3	4	5	6	7	8	9	10														
No of earthworms.	30	35	41	25	29	40	30	37	31	32														



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Biostatistics

Course Code: ZOOL-307 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Any descriptive measure calculated from population is
(a) Parameter (b) Statistic (c) Both a and B (d) None of these
2. The addition rule of probability applies to
(a) Independent events (b) Dependent events
(c) Mutually exclusive events (d) None of these
3. The variance of 8,8,8,8,8,8, is
(a) 0 (b) 8 (c) 1 (d) none
4. Probability always between two values
(a) 0 and n (b) 0 and 1 (c) -1 and 1 (d) None
5. Total number of sample points in sample space when throwing of two dice, are
(a) 12 (b) 36 (c) 6 (d) 8
6. Which of the following is a necessary condition for using a t-distribution
(a) Small sample size (b) unknown σ^2 (c) a & b
(d) large sample size
7. _____ always contain the sign of equality
(a) Null hypothesis (b) Alternative hypothesis
(c) Composite (d) None
8. A characteristic which varies in quantity from one individual to another is called:
(a) Attribute (b) Variable (c) Statistic (d) Parameter
9. The degree of freedom for a contingency table is
(a) n-1 (b) rc-1 (c) (r-1)(c-1) (d) None
10. Mean of a constant value is
Positive (b) Negative (c) Constant (d) Zero



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Evolution

MAX. TIME: 15 Min.

Course Code: ZOO-308 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. What's the difference between genetic drift and change due to natural selection?
 - (A) Genetic drift does not require the presence of variation.
 - (B) Genetic drift does not involve competition between members of a species.
 - (C) Genetic drift never occurs in nature, natural selection does.
 - (D) There is no difference.

2. Of the following, which characterize a population in Hardy-Weinberg equilibrium?
 - (A) large population size
 - (B) No mutation
 - (C) absence of gene flow
 - (D) All above

3. Which of the following are difficult to explain in terms of natural selection?
 - (A) Male peacocks evolve tail feathers that would appear to make them more rather than less vulnerable to predators.
 - (B) Male deer evolve antlers that are not used to defend themselves against predators.
 - (C) A bird issues a warning cry that puts it at greater risk of being noticed by a predator.
 - (D) Some traits appear to have no adaptive value.

4. Disruptive selection occurs when
 - (A) the environment controls which organisms will survive.
 - (B) the extremes of the population have a lesser chance to survive
 - (C) the extremes of the population have a better chance to survive
 - (D) the organisms on one extreme of the population have a better chance to survive

5. A modern day example of evolution and natural selection is:
 - i. The evolution of humans
 - ii. The evolution of car designs
 - iii. The evolution of antibiotic-resistant bacteria.

6. Primitive atmosphere was _____ with no free molecular oxygen.
 - a. Oxidizing
 - b. Reducing
 - c. Dry
 - d. mild

P.T.O.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Pakistan Studies-V
Course Code: PST-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(5 x 4 = 20)

1. What is "DEEN-E-ILAHl"? 1۔ دین الہی کیا ہے۔
2. Write down the causes of Hamayun's? 2۔ نصیر الدین ہمایوں کی ناکامی کے اسباب لکھیں؟
3. Write a short note on " RANA SANGA"? 3۔ رانا سائگا پر مختصر نوٹ لکھیں؟
4. Write about WAHDAT-U-WAJOOD and WAHDAT-U-SHAHOOD and who gave this concept? 4۔ وحدت الوجود اور وحدت الشہود کا نظریہ کیا ہے؟ اور کس نے پیش کیا؟
5. Write a short note on religions views of Aurangzeb? 5۔ اورنگ زیب عالمگیر کے مذہبی نظریات پر مختصر نوٹ لکھیں؟

Q.03 Answer the following Questions:

3X10=30

1. Write down the administrative reforms of Shershah Surry? 1۔ شیرشاہ سوری کی انتظامی اصلاحات لکھیں؟
2. Write a note on Mansabdari System? 2۔ منصب داری سسٹم کے بارے میں نوٹ لکھیں؟
3. Write down the causes of "Mughal's downfall? 3۔ مغلوں کے زوال کے اسباب لکھیں؟



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Pakistan Studies-V
Course Code: PST-301 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i. When did fight the first battle of Panipat?
(1) 1527 (2) 1526 (3) 1528 (4) 1529
- ii. What is the real name of Sher Shah?
(1) Sikandar Khan (2) Hassan Khan (3) Freed khan (4) Kutub khan
- iii. Which tax did Akbar omit of non Muslims?
(1) Yatra tax (2) Darga Pooja Tax (3) Jazya (4) darshan
- iv. Who introduced the concept of Deen-e-Elahi?
(1) Babur (2) Akbar (3) Hamayun (4) Jehangir
- v. War of Knwaha has been fought between?
(1) Babur or Dolat khan (2) Babur or Rana Sanga
(3) Babur or IBraheem (4) Kamran or Hamyaun
- vi. Who is the Crown Honour after Jehangir?
(1) Shah Jahan (2) Aurayzeb
(3) Akbar (4) Babur
- vii. Who build the Badshahi Mosque In Lahore?
(1) Akbar (2) Sher Shah (3) Aurangzeb (4) Jehangir
- viii. Who wrote "Ayne-Akbari"?
(1) Abu-al-fazal (2) Faiziy (3) Abdul Qadir
(4) Shaikh banaras
- ix. In which language the first translation of Tuzk-e-Barbi?
(1) English (2) Hindi (3) Parsion (4) Urdu
- x. Who build the "Qilla Rohtass"?
(1) Sher Shah (2) Hamayun (3) Akbar (4) Aurangzeb



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Political Ideologies

MAX. TIME: 15 Min.

Course Code: POL-304 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Choose the correction Option.

(1 x 5 = 5)

1. The term law has derived from origin
(a) Greek (b) french (c) latin (d) none
2. What is the most scientific comprehensive and logical version of socialism?
(a) Marxism (b) class conflict (c) communism manifesto (d) none
3. A system of government by the whole population or all the eligible members of a state, typically through elected representatives is known as
(a) Capitalism (b) Democracy (c) nationalism (d) none
4.an economic and political system in which a country's trade and industry are controlled by private owners for profit, rather than by the state
(a) Communism (b) capitalism (c) social theory (d) none
5. Two party system is To political stability and parliamentary democracy.
(a) Supportive (b) injurious (c) not relevant (d) none of above

Q.2. Choose correct or incorrect statement

(1 x 5 = 5)

1. Referendum and initiative are two methods of direct legislature.....
2. If the head of state is also democratically elected then it is called a democratic republic.....
3. Violence, coercion and other illegal acts are the modes of operation of a democratic government.....
4. Mode of action of anomic groups is characterized by violence and other illegal acts.....
5. European socialist movements fully supported Marxism.....



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Research Methodology
Course Code: SOC-301 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. If an investigator defines aggression in terms of frequency and intensity of shock administered to another person, he or she has used
 - a. rationalism
 - b. scientific technique
 - c. reference to extraneous variable
 - d. Operational definition

2. In the hypothesis “ Men earn more annual income than women”, Independent variable is
 - a. men
 - b. women
 - c. gender
 - d. annual income

3. _____ usually generates hypotheses.
 - a. Basic research
 - b. Quantitative research
 - c. applied research
 - d. Qualitative research

4. The goals of scientific method are
 - a. Description
 - b. prediction
 - c. Understanding
 - d. all of the above

5. FGD stands for
 - a. Focus group discussion
 - b. false group disorder
 - c. Fallacy grading order
 - d. none of the above

6. Which of the following is not a problem in face to face interviewing?
 - a. Safety
 - b. Problems in answering questions in the intended order
 - c. Expense
 - d. Difficult to supervise interviewers

7. Case studies tend to have:
 - a. both practical and statistical significance
 - b. statistical significance even though they do not have practical significance
 - c. practical significance even though they do not have statistical significance
 - d. neither practical nor statistical significance

8. Double-barreled questions should be avoided because:
 - a) They confuse respondents by asking about two different things
 - b) They rely too much on a respondent's memory
 - c) They are too abstract and general in scope
 - d) They make the questions too long

9. When all participants receive all treatment conditions, the study has risk of:
 - a) Order effects
 - b) Carryover effects
 - c) History effects
 - d) a and b

10. Experiments allow researchers to:
 - a. observe naturally occurring behavior.
 - b. answer cause-and-effect questions about the relationship between variables.
 - c. answer questions about the existence of a relationship between two variables.
 - d. eliminate experimenter bias



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Public Administration

MAX. TIME: 15 Min.

Course Code: POL-305 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- 1) Administrative accountability is established in government organizations by _____
(a) Executive (b) Legislature
(c) Judiciary (d) All the three above
- 2) Financially the performance of public corporations in Pakistan during the last decade has been _____
(a) Excellent (b) Good
(c) Satisfactory (d) Poor
- 3) Public Personnel Management in Pakistan is based on the principle of _____
(a) Spoils (b) Patronage
(c) Merit (d) Give and take
- 4) Performance budgeting is based on _____
(a) Items of expenditure (b) items of investment
(c) Objectives of expenditure (d) plan of implementation
- 5) Formal relationship in an organization is based on _____
(a) Friendship (b) Peer groups
(c) Authority on subordinates (d) Rules and Regulations
- 6) Big government is needed because of _____
a) Increase in population b) increase in budget c) Increase in government employees. d) None of the above
- 7) Ombudsman function is _____
a) Administrative control on finances b) judicial control on finance c) Legislative control on finance d) None of the above
- 8) Any organization is based on _____
a) Profit b) Loss c) Hierarchy d) None of the above
- 9) Red-tapes is related to _____
a) Media b) Private organization c) bureaucracy d) None of the above
- 10) Public policy is headed by _____
a) Government institution b) Private organizations c) independent organizations d) None of the above



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Social Psychology

Course Code: SOC-302 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Which of the following social psychology perspectives involves learning behaviors based on the way that a person thinks about the behavior of others?
 - a) Evolutionary
 - b) social cognition
 - c) social learning
 - d) sociocultural
2. When a person goes along with the group because he or she believes the group is right, or knows better than they, they are exhibiting what type of conformity?
 - a) informative
 - b) normative
 - c) experiential
 - d) knowledge-based
3. The application of psychological theories, methods and techniques to solve practical human problems describes an area of psychology known as:
 - a) Social psychology
 - b) Para-psychology
 - c) Applied psychology
 - d) Humanistic psychology
4. In ancient times, who supposedly inhibited the body and soul of a “crazy” person?
 - a) God
 - b) A saint
 - c) The devil
 - d) None of these
5. The group in an experiment which receives no treatment is called:
 - a) Control group
 - b) Experimental group
 - c) No group
 - d) None of the above

P.T.O.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Project Planning & Management
Course Code: SOC-303 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Which of the following refers to a narrative description of the work to be accomplished?
 - a) The statement of work (SOW)
 - b) The project specifications
 - c) The milestone schedule
 - d) The work breakdown structure (WBS)
2. Scope of a project is the total of all of a project's products and their requirements or features
 - a) Sum
 - b) Product
 - c) Sum and product
 - d) None of the above
3. Which of the following life cycle phases includes brainstorming and common sense at planning stage?
 - a) Conceptualization
 - b) Feasibility
 - c) Preliminary planning
 - d) Detail planning
4. Quality assurance is:
 - a) Detection based
 - b) Inspection based
 - c) Prevention based
 - d) People based
5. The three general preconditions for achieving lasting success as a project manager are:
 - a) Technical Skills, Ability, Human Skills and Design Skill
 - b) Ability, Motivation to manage and Opportunity
 - c) Motivation to manage, Opportunity and Conceptual Skill
 - d) Ability, Capacity and Supervision

P.T.O.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Sociology of Globalization
Course Code: SOC-304 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- 1- The sole multilateral organization that deals with internal trade laws and rules is
 - a. World Health Organization
 - b. International Trade and Tariff Organization
 - c. World Trade Organization
 - d. None of the above.
- 2- Globalization means high _____ interdependence internationally.
 - a. Economic
 - b. Political
 - c. Social
 - d. All of the above.
- 3- According to World System Theory _____
 - a. Developed world has advanced owing to the resources of developing.
 - b. Developed world helps poor countries to develop
 - c. Development for all can only be achieved through absolute globalization
 - d. All of above.
- 4- A region that applies no interest on trade within countries is known as _____
 - a. Free trade zone
 - b. Convenient trade zone
 - c. Low Tariff Trade Zone.
 - d. None of above.
- 5- An investment that comes through foreign country is known as _____
 - a. Direct foreign investment
 - b. Foreign Direct investment
 - c. Foreign Investment
 - d. International Investment

P.T.O.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Sociology of Development
Course Code: SOC-305 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Poverty is?
 1. Lack of money
 2. Lack of assets
 3. Lack of decent living standards
 4. All of these are correct
2. Current population of the Pakistan is?
 1. 207,714,520
 2. 207,134,521
 3. 206,774,420
 4. 207,774,520
3. Dependency theory is an?
 1. Underdevelopment theory
 2. Development theory
 3. Revolution theory
 4. None of these
4. GDP stands for?
 1. Gains of domestic power
 2. Gain and profit
 3. Gross domestic product
5. What is not the dimension of development?
 1. Political
 2. Running
 3. Economic
 4. Social
6. What is environmental development?
 1. Sustainable environment
 2. Biodiversity
 3. Ecosystem
7. Which theorist saw the division of labor as harmful to the workforce?
 1. Marx
 2. Durkheim
 3. Simmel
 4. Weber
8. Underdevelopment school of thought find..... work to be of great value?
 1. Max Weber
 2. Karl Marx
 3. Lerner
 4. None of the above
9. The purchasing power of a person or a family as relative to the people in the same society is?
 1. Poverty
 2. Power
 3. Absolute poverty
 4. Relative poverty
10. Modernization theory is considered?
 1. Asian philosophy
 2. American Sociology
 3. Eurocentric
 4. Politically biased



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Sociology of Education
Course Code: SOC-306 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i). Theories concerned with what is happening in the classroom and with teacher labeling of students are
- Classical theories
 - Functionalist theories
 - Interactionist theories
 - Conflict theories
- ii). Specialization and further distinction in making a living within an industrial economy makes
- a demand for better man-machine facilities
 - a demand for specialized courses and training programs
 - a greater demand for better education
- iii). Which of the following does not influence the process of education?
- the culture of the society and its social institutions
 - political organization of the society
 - the upper middle class of the society
- vi). Bourdieu attributed the reproduction of class to:
- Cults of the capital
 - Capital culture
 - Cultural capital
 - Socialization
- v). Which of the following perspectives emphasizes the idea that people learn attitudes and roles through shared language?
- Psychoanalytical theory
 - Differential association theory
 - Structural theory
 - Symbolic interactionism
- vi). The introduction of market principle in education largely results in
- more funding for students in higher education
 - a reduction in parental choice of school
 - increased state regulation through national testing and inspections
- vii). Application of principles of Sociology to education is known as
- Sociology of education
 - Educational Sociology
 - Social science of education
- viii). Schools are social institutions because they
- Preserve and instill in future generations the knowledge, ideas and customs of culture
 - suggest ways and means of social progress
 - are established by the society
- ix). Educational sociology is the study of
- norms and values
 - important dimensions of sociology that are significant for educative process
 - promotion of sociology through education
- x). What does Durkheim believe the role of education is
- to teach people to be submissive to the authority
 - to teach norms and values of the society
 - to teach norms and values to create social cohesion
 - to teach the demands of job market



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Parametric and Nonparametric Tests (Theory)

Course Code: STAT-301 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Questions with short answers.

(5 x 4 = 20)

- How do non-parametric tests differ from parametric tests? Discuss the advantages of non-parametric tests over parametric tests.
- Write the procedure of a non-parametric test which is equivalent to paired samples T-test.
- What is the Power of the test
- Write the procedure of Bartlett test
- What is the purpose of goodness-of-fit test? Describe three situations where this test might be used appropriately.

Q.3. Use the median test at the $\alpha = 0.05$ level, to test the null hypothesis that the two samples are drawn from populations with the same median.

Sample 1	92, 63, 30, 78, 24, 19, 26, 79, 54, 57, 97, 46, 58, 74, 77, 80, 93, 99, 78, 50.
Sample 2	77, 87, 98, 62, 76, 47, 66, 83, 72, 80, 53, 80, 48, 75, 76, 78, 97, 53, 64, 67.

(8)

Q.4.

- Discuss fully the procedure and rationale of a two-sample median test.
- Using the data in question 24.12, test at $\alpha = 0.05$ the hypothesis that men and women come from populations with the same median, applying the median test.

(10)

Q.5.

- A random sample of size 4 is drawn from a normal population with known variance 15. A one-tailed test of the form $H_0: \mu \leq 30$ against $H_1: \mu > 30$ at the 5% level of significance is performed. Calculate the probabilities of **type II error (β)** for the values of $\mu = 32, 36$ and 34.5 in the alternative hypothesis. Also calculate the powers of the test.

(5)

- The various sums for two sets of data, each of 4 observations are as follows:

Set	$\sum X$	$\sum Y$	$\sum XY$	$\sum X^2$	$\sum Y^2$
A	8	37	76	18	349
B	15	47	179	59	557

- Find the estimates of β_1 and β_2 , the regression coefficients of two linear regression lines.
- Construct the 95% confidence interval for $\beta_1 - \beta_2$ and test the hypothesis that $H_0: \beta_1 = \beta_2$ against the $H_1: \beta_1 \neq \beta_2$ at the 0.05 level of significance

(7)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Parametric and Nonparametric Tests (Theory)
Course Code: STAT-301 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

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Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Which of the following value is impossible for a Chi-square statistic?
(a) Greater than zero (b) Less than zero (c) Equal to zero (d) Not equal to zero
2. The value of Chi-square statistic is always zero if:
(a) $\sum f_o = \sum f_e$ (b) $f_o = f_e$ (c) $f_o > f_e$ (d) $f_o < f_e$
3. The non-parametric equivalent of an unpaired samples t-test is
a) Sign test b) Wilcoxon signed rank test c) Mann-whitney U test d) Kruskal Wallis test
4. The Mann-Whitney U test is preferred to a t-test when
a) Data are paired b) Sample sizes are small c) The assumption of normality is not met d) Samples are dependent
5. To perform a Run test for randomness, the data must be
a) Qualitative b) Quantitative c) Divided into at least two categories d) Divided into exactly two categories
6. The choice of one-tailed test and two tailed test depends upon
a) Null hypothesis b) Alternative hypothesis c) None of these d) Composite hypothesis
7. The range of test statistic-Z is
a) 0 to ∞ b) 0 to 1 c) $-\infty$ to $+\infty$ d) -1 to +1
8. When testing for randomness, we can use
a) Mann-Whitney U test b) Sign test c) Runs test d) None of these
9. A passing student is failed by an examiner, it is an example of
a) Type I error b) Type II error c) Best decision d) All of the above
10. Homogeneity of several variances can be tested by
(a) Bartlett's test (b) Fisher's exact test (c) F test (d) T-test.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Design and Analysis of Experiments (Theory)
Course Code: STAT-303 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i) The basic principles of experimental designs consist of:
a) Randomization b) Replication c) Local Control d) All of these
- ii) The smallest subdivision of the experimental material is called:
a) Treatments b) Experimental Unit c) Experimental Error d) None of these
- iii) In a completely randomized design, treatments are assigned to experimental units at random.
a) Completely b) Partially c) Systematically d) None of these
- iv) The assumptions under analysis of variance consist of:
a) Normality and Independence c) Linearity and Additivity
b) Both (a) and (b) d) None of these
- v) The following design provides the maximum number of degrees of freedom for error sum of squares:
a) Completely Randomized Design c) Completely Randomized Block Design
b) Latin Square Design d) None of these
- vi) Multiple comparisons tests are applicable when:
a) Null Hypothesis about equality of means is rejected
b) Null Hypothesis about equality of means is accepted
c) Does not depend upon the rejection or acceptance of Null Hypothesis
d) None of these
- vii) One can estimate the missing observation through covariance technique by simply changing the sign of....
a) b b) r c) Correction Factor d) None of these
- viii) The efficiency of two experimental designs can simply be measured through of error variances.
a) Addition b) Subtraction c) Multiplication d) Ratio
- ix) Two Latin squares are if each letter of one square design occurs exactly once with every letter of the other square when they are superimposed.
a) Orthogonal b) Factorial Designs c) Efficient d) None of these
- x) A contrast iscombination of treatments.
a) Linear b) Exponential c) Quadratic d) None of these



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Design and Analysis of Experiments (Theory)

Course Code: STAT-303 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2. Differentiate between the following terms:

(5x4=20)

- i) Fixed Effects and Random Effects
- ii) Analysis of Variance and Covariance
- iii) Completely Randomized and Completely Randomized Block Designs
- iv) Replication and Randomization
- v) Latin Square and Graeco Latin Square Designs.

Q3. a) In an experiment 'k' treatments and 'r' blocks are selected at random from a large number of treatments and blocks. Develop expected mean squares by clearly indicating the assumptions used.

b) Given the following ANOVA for a CR design for four treatments:

(6+4)

S.O.V	d.f.	SS
Treatments	3	1.1986
Error	36	1.0323

Test the significance of difference between treatment means by using Duncan's Multiple Range Test when treatment means for four treatments were 1.464, 1.195, 1.325, and 1.66.

Q4. a) Seven treatments arranged in six randomized complete blocks gave the following sum of squares and products:

S.O.V	XY	YY	XX
Blocks	-111.65	6.31	7472.6
Treatments	3598.05	112.86	116020.3
Error	682.20	23.23	28665.1

- i) Is the regression of Y on X significant at 0.05 level of significance.
- ii) Construct ANOVA and write the inference.

b) The analysis of Variance for a RCB design produced the table shown below:

(6+4)

S.O.V	d.f.	SS	MS	F-Ratio
Treatments	3	28.2	-	
Blocks	5	-	13.80	
Error	-	34.1	-	

Complete the ANOVA table and test the significance of difference among the treatment means.

Q5. a) Derive formula for estimating N missing observations in a Latin Square Design when values are missing in different columns, different rows and different treatments.

b) In an experiment to examine the effects of row spacing on the yield of wheat, 8 row spacing were used and 6 blocks of an experiment were used. The sum of squares for Total, Blocks and Treatments were 2195.48, 617.86 and 1283.65 respectively. Find the relative efficiency of this design with the design in which blocks are ignored.

(7+3)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Sampling Techniques (Theory)
Course Code: STAT-305 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. A complete list of all the units in the population is called -----
A. Sampling unit
B. Population unit
C. Sampling frame
D. None of the above
2. When the sample survey becomes a census survey, the sampling error becomes -----
A. Zero
B. One
C. Constant
D. None of the above
3. The Simple Random Sampling is a ----- technique.
A. Probability Sampling
B. Non-Probability Sampling
C. Both (A) & (B)
D. None of the above
4. Suppose we select every fourth invoice in a file. What type of sampling is this?
A. Simple Random
B. Cluster
C. Stratified
D. Systematic
5. Sampling in which sampling unit can be repeated more than once is called -----
A. Sampling with replacement
B. Sampling without replacement
C. Both (A) & (B)
D. None of the above
6. If a sample is drawn from each stratum minimizing the probabilities of non-preferred samples, it is known as:
A. Selection with proportional allocation
B. Controlled selection
C. Haphazard selection
D. None of the above
7. In systematic sampling, if N is not an integral multiple of nk , we use -----
A. Linear systematic sampling
B. Circular systematic sampling
C. Centrally Located systematic sampling
D. None of the above
8. For a population that is not normally distributed, the distribution of the sample means will -----
A. be negatively skewed
B. approach the normal distribution.
C. be positively skewed.
D. never approaches normal distribution.
9. The stratification after the selection of sample is called:
A. Two-way stratification
B. Deep stratification
C. Post stratification
D. None of the above
10. ----- is the standard deviation of a sampling distribution.
A. Sample standard deviation
B. Replication error
C. Meta error
D. Standard error



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Probability Theory (Theory)

Course Code: STAT-307 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2 Write short answer on the following questions. (20)

- a) Describe the classical, relative frequency, and subjective concepts of probability.
- b) If $P(A) = 0.3$, $P(B) = 0.4$, and $P(A \text{ and } B) = 0.2$, are A and B independent.
- c) How does conditional probability relate to the concept of independence?
- d) Differentiate between independent and mutually exclusive events. Are independent events mutually exclusive?
- e) Find the probability of being dealt a bridge hand of 13 cards containing 5 spades, 2 hearts, 3 diamonds and 3 clubs.
- f) When flipping an unbiased coin, determine the probability that the 7th head occurs on the 13th trial.
- g) In Bayes theorem, how does the prior probability differ from the revised probability?
- h) Describe the significance of moments in probability distribution.
- i) What is the meaning of the expected value of a probability distribution?
- j) What are the four properties that must be present in order to use Poisson distribution?

Q.3.a) A patient is thought to have one of three diseases A, B and C, whose probabilities under given conditions are 0.5, 0.3 and 0.2 respectively. A test is carried out to help the diagnosis and it yields a positive result with a probability of 0.1 for disease A, a probability of 0.2 for disease B and a probability of 0.9 for disease C. The test is conducted 6 times and the results are positive 4 times and negative twice. What is the probability of each disease after testing?

b) A bag contains 3 red 5 black balls and another 4 red and 7 black balls. A ball is drawn from a bag selected at random. Find the probability that it is red.

(7+3)

Q.4 Compute the probability generating function, cumulants, factorial cumulants, coefficient of skewness and kurtosis of negative binomial distribution.

(10)

Q.5.a) Describe the geometric experiment and show that its mean greater than its variance.

b) The probability that a person will install a black phone in a residence is estimated to be 0.3. Find the probability that the 10th phone installed in a new subdivision is the 1st black phone.

c) Determine the probability that the income tax authorities will catch 3 income tax returns with illegitimate deductions, if it randomly selects 6 returns among 20 income tax returns of which 8 contain illegitimate deductions.

(4+3+3)



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Statistical Computer Packages
Course Code: STAT-309 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

i. SPSS data file extension is:

- a) .sps b) .sav c) .spo d) .xls

ii. To find the Mode for a variable, which set of instructions should you give SPSS?

- a) Analyze → Descriptive Statistics → Explore → Statistics → Descriptives → ok.
b) Graphs → Descriptive Statistics → Frequencies → Statistics → ok.
c) Analyze → Descriptive Statistics → Descriptives → Options → ok
d) None of the Above

iii. Types of Blood Group is an example of:

- a) Nominal Data b) Ordinal Data c) Interval Data d) Ratio Data

iv. In Testing of Hypothesis problems, One may reject the null hypothesis, when:

- a) $p > \alpha$ b) $p < \alpha$ c) $p \leq \alpha$ d) $p \geq \alpha$

v. In an experiment to determine if antibiotics increase the final dressed weight of cattle, the following were measured on each animal in the study.

sex, initial weight, weight gain, grade of meat.

where grade is recorded as (A, B, or C). The scales of measurement of these variables are:

- a) Nominal, ratio, interval, nominal
b) Nominal, ratio, ratio, nominal
c) Nominal, ratio, ratio, ordinal
d) Ordinal, ratio, ratio, ordinal

vi. The appropriate graph for a continuous nature of data is:

- a) Histogram b) Simple Bar Chart c) Component Bar Chart d) Pie Chart

vii. In SPSS v 20 or above, one can define a variable name of maximum....characters?

- a) 8 b) 16 c) 32 d) 64

viii. The first character of variable name defined in SPSS should be.

- a) Numeric b) Alphabet c) Special Character d) None of these

ix. Shoe-size is an example of

- a) Nominal Data b) Ordinal Data c) Interval Data d) Ratio Data

x. Time on a Clock is an example of

- a) Nominal Data b) Ordinal Data c) Interval Data d) Ratio Data



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No.

PAPER: Statistical Computer Packages
Course Code: STAT-309 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers.

(4 x 5 = 20)

- a) State the Rules for defining a variables Name in SPSS.
- b) Nominal, Ordinal, Interval and Ratio Scale of Measurement
- c) Use of Compute Command in SPSS
- d) Assumptions of Parametric Tests.

SUBJECTIVE

Note: You are required to justify your answers in this section by stating hypothesis, statistics, reference of graphs etc. on your answer sheet.

Q3: The following is the SPSS output from a data containing the Horsepower of 156 cars.

		Statistic	Std. Error
Horsepower	Mean	185.95 ^a	4.540
	95% Confidence Interval for Mean		
	Lower Bound	176.98	
	Upper Bound	194.92	
	5% Trimmed Mean	183.04	
	Median	177.50	
	Variance	3214.926	
	Std. Deviation	56.700	
	Minimum	55	
	Maximum	450	
	Range	395	
	Interquartile Range	67	
	Skewness	1.001	.194
	Kurtosis	2.407	.386

Runs Test	
Horsepower	
Test Value ^a	178
Cases < Test Value	78
Cases >= Test Value	78
Total Cases	156
Number of Runs	62
Z	-2.731
Asymp. Sig. (2-tailed)	.006

a. Median

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Horsepower	.077	156	.026	.949	156	.000

	N	Mean	Std. Deviation	Std. Error Mean
Horsepower	156	185.95	56.700	4.540

One-Sample Test

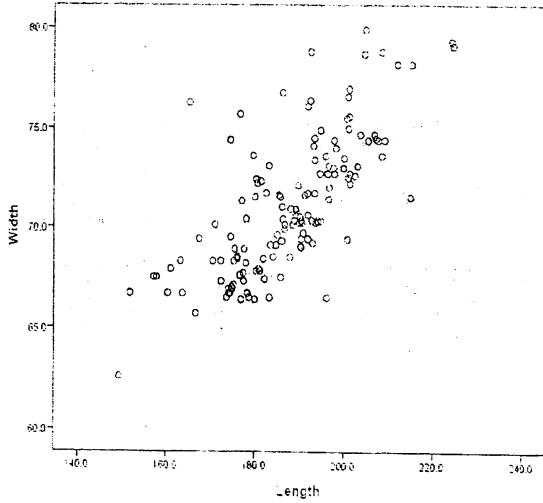
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Horsepower	-3.095	155	.002	-14.051	-23.02	-5.08

Study the above output carefully answer the following questions:

(2+2+2)

- a) Test the normality of the data.
- b) Test the randomness of the data.
- c) Can we say that the average horsepower of the cars is 200?

Q4. The following is the output of bivariate data of 156 cars width and length:



Correlations			
		Length	Width
Length	Pearson Correlation	1	.710
	Sig. (2-tailed)		.000
	N	156	156

Correlations			
		Length	Width
Spearman's rho	Length	Correlation	1.000
		Coefficient	.716
	Sig. (2-tailed)		.000
		N	156

- Can we say that the relationship between cars width and length is linear?
- Test the significance of the relationship between cars width and length by using an appropriate method? (2+3)

Q4: a) The following is the SPSS output of a data set measuring an association of consumer's satisfaction between color and taste of soft drinks.

			Taste				
			Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	
Color	White	Count	108	68	60	47	283
		Expected Count	102.2	65.4	69.1	46.3	283.0
		% within Color	38.2%	24.0%	21.2%	16.6%	100.0%
		% within Taste	77.7%	76.4%	63.8%	74.6%	73.5%
	% of Total	28.1%	17.7%	15.6%	12.2%	73.5%	
	Black	Count	10	4	18	4	36
		Expected Count	13.0	8.3	8.8	5.9	36.0
		% within Color	27.8%	11.1%	50.0%	11.1%	100.0%
		% within Taste	7.2%	4.5%	19.1%	6.3%	9.4%
	% of Total	2.6%	1.0%	4.7%	1.0%	9.4%	
	Green	Count	21	17	16	12	66
		Expected Count	23.8	15.3	16.1	10.8	66.0
% within Color		31.8%	25.8%	24.2%	18.2%	100.0%	
% within Taste		15.1%	19.1%	17.0%	19.0%	17.1%	
% of Total	5.5%	4.4%	4.2%	3.1%	17.1%		
Total	Count	139	89	94	63	385	
	Expected Count	139.0	89.0	94.0	63.0	385.0	
	% within Color	36.1%	23.1%	24.4%	16.4%	100.0%	
	% within Taste	100.0%	100.0%	100.0%	100.0%	100.0%	
% of Total	36.1%	23.1%	24.4%	16.4%	100.0%		

		Value	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.197	.017
N of Valid Cases		385	

- State the null and alternative hypothesis for the association for satisfaction between Color and Taste of the soft drink.
- What percentage of consumers was very satisfied with the black color of the soft drink?
- What is the decision regarding null hypothesis? (1+1+4)

b) We find some depressed people and check that they are all equivalently depressed to begin with. Then we allocate each person randomly to one of three physical exercise groups: no exercise; 20 minutes of jogging per day; or 60 minutes of jogging per day. The following output of allocated groups is generated through SPSS

Levene Statistic	df1	df2	Sig.
1.708	2	21	.205

	Exercise Group
Chi-Square	7.290
df	2
Asymp. Sig.	.026

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1306.083	2	653.042	4.414	.025
Within Groups	3107.250	21	147.964		
Total	4413.333	23			

i) Test the homogeneity of exercise groups

ii) Can we conclude that there is no significant difference among the exercise groups (2+2)

Q5. The administrator of a new paralegal program at Seagate Technical College want to estimate the grade point average in the new program. He thought that high school GPA, the verbal score on the Scholastic Aptitude Test (SAT) and the mathematics score on the SAT would be good predictors of paralegal GPA. The following output is generated from the 9 students recorded data using SPSS:

		High School GPA	SAT Verbal	SAT Math	Paralegal GPA
High School GPA		1	.609	.636	.911
	Sig. (2-tailed)		.082	.066	.001
	N	9	9	9	9
SAT Verbal		.609	1	.599	.616
	Sig. (2-tailed)	.082		.088	.077
	N	9	9	9	9
SAT Math		.636	.599	1	.487
	Sig. (2-tailed)	.066	.088		.183
	N	9	9	9	9
Paralegal GPA		.911	.616	.487	1
	Sig. (2-tailed)	.001	.077	.183	
	N	9	9	9	9

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.928 ^a	.861	.778	.37513	1.974

a. Predictors: (Constant), High School GPA, SAT Verbal, SAT Math

b. Dependent Variable: Paralegal GPA



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Cell and Molecular Biology-II
Course Code: ZOOL-301 Part-I (Compulsory)

MAX. TIME: 15 Min.
MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (0.5x20=10)

1. A nucleoside is similar to nucleotide except
 - a. Nitrogenous base
 - b. Ribose
 - c. Phosphate
 - d. All of above
2. In prokaryotes, during replication, supercoiles are formed which are removed by the action of
 - a. Ligase
 - b. Topoisomerase
 - c. Telomerase
 - d. helicase
3. In eukaryotes the RNA polymerase required for the transcription of t-RNA is
 - a. I
 - b. II
 - c. III
 - d. Sigma factor
4. During translation, translocation of ribosomes is done by
 - a. EFTS
 - b. EFTU
 - c. EFG
 - d. Chain terminator codons occur
5. Sigma factor is a component of
 - a. DNA ligase
 - b. RNA polymerase
 - c. DNA Polymerase
 - d. Reverse transcriptase
6. A promoter on DNA
 - a. Initiates transcription
 - b. Regulates termination
 - c. Codes for RNA
 - d. Transcribes repressor
7. Thymine dimers are often corrected by light induced repair mechanism. The enzyme involved in the process is
 - a. Photolyase
 - b. Photoligase
 - c. Endonuclease
 - d. Exonuclease
8. Which of the following DNA polymerase is involved in replication of mitochondrial DNA.
 - a. DNA polymerase alpha
 - b. DNA polymerase beta
 - c. DNA polymerase gamma
 - d. DNA polymerase delta
9. Which of the following enzymes are used to join DNA fragments.
 - a. DNA ligase
 - b. DNA polymerase
 - c. Telomerase
 - d. Endonuclease
10. DNA template for RNA synthesis has the following order of bases AGCTTCGA. What will be the order of bases in mRNA
 - a. TCGAAGCT
 - b. UGCUAGCT
 - c. TCGAUCGU
 - d. UCGAAGCU
11. What would be the effect on the PCR reaction if any of the following circumstances arose:
1) there are no primers in the reaction, 2) there are no dNTPs in the reaction, 3) there is no Taq polymerase in the reaction?
 - a. PCR would proceed normally
 - b. Non-specific PCR of random templates will occur
 - c. The reaction will cease after a few cycles
 - d. The PCR reaction will not commence

P.T.O.



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Biochemistry-II
Course Code: ZOOL-303 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

.....
Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i The action of lipase in the intestine is greatly enhanced by _____ of lipids.
A. diffusion B. storage
C. micelle D. fractionation
- ii The free energy change for a reaction depends upon the _____ of initial reactants and final products
A. pH B. concentration
C. Both A and B D. None of these
- iii Conversion of glucose into fructose is
A. deamination B. epimerization
C. isomerization D. carboxylation
- iv Ammonia produced in humans is disposed off in the form of
A. urea B. ammonia
C. uric acid D. all of these
- v Carbamoyl phosphate synthetase-I present
A. cytoplasm B. ribosomes
C. mitochondria D. None of these
- vi The ammonia transport from muscle to liver for urea formation through
A. Aspartate B. Alanine glucose cycle
C. Both A and B D. None
- vii Which one participates in reactions that produce a carbon-carbon double bond
A. NAD⁺ B. FAD⁺
C. NADP D. none
- viii Lipoate carries both electrons and acyl molecules because of its property of
A. oxidation B. reduction
C. Both A and B D. None of these
- ix Maximum energy produced by
A. Fats B. Carbohydrates
C. Protein D. Nucleic acid
- x The stable ring formation in D-Glucose involves
A. C-1 and C-4 B. C-1 and C-2
C. C-1 and C-5 D. C-2 and C-5



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Animal Physiology – II
Course Code: ZOOL-305 Part-I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

- i. Which one of the following pair of endocrine glands secrete steroid hormones?
a. Thymus and testes b. Adrenal and ovary
c. Pancreas and parathyroid d. Adrenal and Parathyroid
- ii. Blood calcium level is lowered by the action of _____.
a. Thyroxine b. Calcitonin c. Parathormone d. both b and c
- iii. Which one of the following pair is incorrectly matched?
a. Glucagon-beta cells (source)
b. Insulin-diabetes mellitus (disease)
c. Somatostatin-delta cells (source)
d. Corpus luteum-relaxin (secretion)
- iv. Which one of the following sets of ions are necessary in the chemical events for muscle contraction?
a. Na^+ and K^{++} b. Ca^{++} and Mg^{++} c. Na^+ and Ca^{++} d. Na^+ and Mg^{++}
- v. Fertilizin is a chemical substance produced from the following?
a. Mature eggs b. Acrosome c. Polar bodies d. Middle piece of sperm
- vi. Sertoli cells are found in
a. Liver b. Seminiferous tubules c. Heart d. Germinal epithelium
- vii. If hydrostatic pressure is used to move a molecule through a membrane, this is termed
a. Filtration b. Osmosis c. Active transport d. Endocytosis
- viii. Which one of the following hormones does not need second messenger?
a. FSH b. LH c. Glucagon d. Estrogen
- ix. The amount of pressure required to stop osmosis is called _____.
a. Osmotic pressure b. Pressure difference c. Active transport d. Osmotic balance
- x. The normal polarized state of -90 mV is lost in which stage?
a. Repolarization b. Depolarization c. Resting d. Refractory period



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019
Examination: B.S. 4 Years Program

Roll No.

PAPER: Biostatistics
Course Code: ZOOL-307 Part – II

MAX. TIME: 2 Hrs. 45 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2	<p>Give short answer of following questions</p> <ol style="list-style-type: none"> If we toss three coins, what is the probability all three coins will have heads? Define the term replication. Differentiate between primary and secondary data. What is the relationship between variance and standard deviation? Differentiate between type-I and type-II error. What are parameters of binomial and hypergeometric distribution? Define attribute by giving example. What is the use of one way ANOVA. Give an example Give formula of unpaired t-test. Define independent variable with suitable example. 	2x10=20																						
Q.3	<p>Do the following numbers indicate a 9:3:3:1 ratio? Explain it with detail</p> <p>370:100: 90: 40</p>	10																						
Q.4	<p>Calculate the variance, standard deviation, standard error of the mean and coefficient of variation of the data given below.</p> <table border="1" data-bbox="231 1075 908 1612"> <thead> <tr> <th>No. of Pods / Plant</th> <th>No of Plants</th> </tr> </thead> <tbody> <tr><td>15-17</td><td>5</td></tr> <tr><td>18-20</td><td>6</td></tr> <tr><td>21-23</td><td>8</td></tr> <tr><td>24-26</td><td>12</td></tr> <tr><td>27-29</td><td>22</td></tr> <tr><td>30-32</td><td>18</td></tr> <tr><td>33-35</td><td>15</td></tr> <tr><td>36-38</td><td>9</td></tr> <tr><td>39-41</td><td>5</td></tr> </tbody> </table>	No. of Pods / Plant	No of Plants	15-17	5	18-20	6	21-23	8	24-26	12	27-29	22	30-32	18	33-35	15	36-38	9	39-41	5	10		
No. of Pods / Plant	No of Plants																							
15-17	5																							
18-20	6																							
21-23	8																							
24-26	12																							
27-29	22																							
30-32	18																							
33-35	15																							
36-38	9																							
39-41	5																							
Q.5	<p>In a forest community the earthworm population was sampled by excavating ten random quadrats (25 x 25 x 30 cm). The number of earthworms per Quadrat are given below. Test whether the distribution of the earthworm population is in accordance with the null hypothesis or deviates from it (null hypothesis states that all classes have equal probability)</p> <table border="1" data-bbox="231 1800 1239 1935"> <thead> <tr> <th>Qr. Nos</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>No of earthworms.</td> <td>30</td> <td>35</td> <td>41</td> <td>25</td> <td>29</td> <td>40</td> <td>30</td> <td>37</td> <td>31</td> <td>32</td> </tr> </tbody> </table>	Qr. Nos	1	2	3	4	5	6	7	8	9	10	No of earthworms.	30	35	41	25	29	40	30	37	31	32	10
Qr. Nos	1	2	3	4	5	6	7	8	9	10														
No of earthworms.	30	35	41	25	29	40	30	37	31	32														



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Biostatistics

MAX. TIME: 15 Min.

Course Code: ZOOL-307 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. Any descriptive measure calculated from population is
(a) Parameter (b) Statistic (c) Both a and B (d) None of these
2. The addition rule of probability applies to
(a) Independent events (b) Dependent events
(c) Mutually exclusive events (d) None of these
3. The variance of 8,8,8,8,8,8, is
(a) 0 (b) 8 (c) 1 (d) none
4. Probability always between two values
(a) 0 and n (b) 0 and 1 (c) -1 and 1 (d) None
5. Total number of sample points in sample space when throwing of two dice, are
(a) 12 (b) 36 (c) 6 (d) 8
6. Which of the following is a necessary condition for using a t-distribution
(a) Small sample size (b) unknown σ^2 (c) a & b
(d) large sample size
7. _____ always contain the sign of equality
(a) Null hypothesis (b) Alternative hypothesis
(c) Composite (d) None
8. A characteristic which varies in quantity from one individual to another is called:
(a) Attribute (b) Variable (c) Statistic (d) Parameter
9. The degree of freedom for a contingency table is
(a) n-1 (b) rc-1 (c) (r-1)(c-1) (d) None
10. Mean of a constant value is
Positive (b) Negative (c) Constant (d) Zero



UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig.

Roll No. in Words.

PAPER: Evolution

MAX. TIME: 15 Min.

Course Code: ZOO-308 Part-I (Compulsory)

MAX. MARKS: 10

Signature of Supdt.:

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1. What's the difference between genetic drift and change due to natural selection?
 - (A) Genetic drift does not require the presence of variation.
 - (B) Genetic drift does not involve competition between members of a species.
 - (C) Genetic drift never occurs in nature, natural selection does.
 - (D) There is no difference.

2. Of the following, which characterize a population in Hardy-Weinberg equilibrium?
 - (A) large population size
 - (B) No mutation
 - (C) absence of gene flow
 - (D) All above

3. Which of the following are difficult to explain in terms of natural selection?
 - (A) Male peacocks evolve tail feathers that would appear to make them more rather than less vulnerable to predators.
 - (B) Male deer evolve antlers that are not used to defend themselves against predators.
 - (C) A bird issues a warning cry that puts it at greater risk of being noticed by a predator.
 - (D) Some traits appear to have no adaptive value.

4. Disruptive selection occurs when
 - (A) the environment controls which organisms will survive.
 - (B) the extremes of the population have a lesser chance to survive
 - (C) the extremes of the population have a better chance to survive
 - (D) the organisms on one extreme of the population have a better chance to survive

5. A modern day example of evolution and natural selection is:
 - i. The evolution of humans
 - ii. The evolution of car designs
 - iii. The evolution of antibiotic-resistant bacteria.

6. Primitive atmosphere was ____ with no free molecular oxygen.
 - a. Oxidizing
 - b. Reducing
 - c. Dry
 - d. mild

P.T.O.