PAPER: Perception, Cognition, Learning and Memory

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

Signature of Supdt.:

Course Code: APSY-401   Part–I (Compulsory)

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

1. Experiments are conducted in order to:
   a. Replicate and extend previous findings
   b. Just see what happens.
   c. Test theories
   d. All of these

2. A very useful principle of learning is that a new response is strengthened by:
   a. Punishment
   b. Reinforcement
   c. Biofeedback
   d. Discriminative Stimulus

3. Aversion is one of the conditioning procedures used in:
   a. Non-directive therapy
   b. Psychoanalytic therapy
   c. Behavior therapy
   d. Chemotherapy

4. The limit for Working Memory is said to be?
   a. 7 (+/-2)
   b. 10
   c. Indefinite
   d. One thing at a time

5. Strategy formulation in problem solving includes:
   a. Analysis and synthesis
   b. Divergent and convergent thinking
   c. All of the above
   d. None of the above

6. _____ is the ability to learn material faster the second time it is learned
   a. Relearning
   b. Recall
   c. Retrieve
   d. Memory

7. In _____, we perceive a pattern against a background a figure with a distinct shape and clearly defined edges and a ground that is all the rest.
   a. F & G
   b. G & F
   c. Both a & b
   d. None of the Above

8. _____ very sensitive to pressure.
   a. Eye
   b. Nose
   c. Skin
   d. Ear

9. The "Persistence" component of motivation means
   a. Concentration and vigor in pursuing one's goals
   b. Decision to initiate a behavior
   c. Continued effort towards a goal
   d. Both a & c

10. Need achievement theory of motivation was postulated by
    a. Atkinson and McClelland
    b. Atkinson and Bandura
    c. Davison and Helsen
    d. None of these

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Developmental Psychopathology
Course Code: APSY-404   Part–I (Compulsory)

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

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

1. Ali thinks he should obey his teachers only if they are carefully watching him. Kohlberg would suggest that Ali demonstrates a(n) _____ morality.
   a) Conventional
   b) Unconventional
   c) Preconventional
   d) Postconventional

2. The process of developing a sense of identity during adolescence was highlighted by:
   a) Erikson's psychosocial development theory.
   b) Piaget's cognitive development theory.
   c) Kohlberg's moral development theory.
   d) Harlow's attachment theory.

3. Which of the following is the best research method for developmental psychologists?
   a) Case study
   b) Experiment
   c) Survey
   d) Longitudinal study
   e) Crosssectional

4. Adil is an irritable, tense, sleepless little boy who is uncontrollably worried about his math tests, getting caught in an earth quake, being bitten by his neighbor's dog, and embarrassing moments with classmates at school. He often complains of stomach aches, dizziness, heart pounding, and short breath. Out of the following choices, Adil is more likely to have:
   a) SAD
   b) SP
   c) OCD
   d) PTSD
   e) GAD

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UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Clinical Psychology-I
Course Code: APSY-407   Part–I (Compulsory)

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

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

1. If we have two sets of observation and we want to determine the relationship between two variables, which method gives a useful solution?
   a. Case study method
   b. Correlational method
   c. Observational method
   d. Interview method

2. Psychological assessment starts with a:
   a. Case history
   b. Referral question
   c. Diagnosis question
   d. Treatment plan

3. The sense of mental trust and harmony that characterized a good relationship is referd as:
   a. Friendship
   b. Rapport
   c. Genuiness
   d. All of the above

4. A type of procedure in which a clinician assesses the appearance, behavior and cognition of the patient is known as;
   a. Clinical judgment
   b. Clinical Assessment
   c. Mental state examination
   b. Mental capability test

5. If a clinician comments upon the gait, posture, dress, and general hygiene of the client he is describing his;
   a. Physical health
   b. Consciousness
   c. General appearance & behavior
   d. Cognitive functions

6. Stereotypical thinking, oversimplification, and projection are some of the specific errors that can affect:
   a. Clinical observation
   b. Clinical interview
   c. Clinical testing
   d. All of the above

7. The most stressed in behavioral assessment methods is;
   a. Qualification
   b. Quantification
   c. Frequency of Behavior
   d. None of the above

8. For people to decide about participating in psychological research they must be given knowledge of the potential benefit and risks. This principle is called;
   a. Risk and benefit disclosure
   b. Informed consent
   c. Privacy
   d. Confidentiality

9. Using structured interview when there is greater diagnostic agreement between clinician we can say it has high;
   a. Validity
   b. Reliability
   c. Content validity
   d. None of the above

10. Synthesizing clinical information can be viewed as;
    a. Statistical procedure
    b. Creative problem solving
    c. Report writing
    d. None of the above

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Experimental Psychology
Course Code: APSY-471   Part–I (Compulsory)

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

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Signature of Supdt.:

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

1. **Decision making involves**
   a. Evaluating alternatives and making choices among them
   b. Active efforts to discover what must be done to achieve a goal that is not readily attainable
   c. The process which we use when we come up with a new idea
   d. None of these

2. **A thought process or method used to generate creative ideas by exploring many possible solutions**

   a. Divergent Thinking
   b. Critical Thinking
   c. Lateral Thinking
   d. All of these

3. **Learning to associate one stimulus with another or with particular consequences is called**
   a. Associative learning
   b. Classical conditioning
   c. Operant conditioning
   d. Observational Conditioning

4. **A very useful principle of learning is that a new response is strengthened by:**
   a. Punishment
   b. Reinforcement
   c. Biofeedback
   d. Discriminative Stimulus

5. **Aversion is one of the conditioning procedures used in:**
   a. Non-directive therapy
   b. Psychoanalytic therapy
   c. Behavior therapy
   d. Chemotherapy

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UNIVERSITY OF THE PUNJAB

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

Roll No. ....

PAPER: Research Methods-II
Course Code: BSCS-401   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. What is difference between independent and dependent variable?

i. Independent اور Dependent ویری ایبل کے در میان کیا فرق ہے؟

ii. What is the difference between hypothesis and research question?

ii. تحقیقی مفروضہ اور سوال میں کیا فرق ہے؟

iii. What is difference between quantitative and qualitative research?

iii. Quantitative اور Qualitative تحقیق میں کیا فرق ہے؟

iv. What is the difference between construct and concept?

iv. Construct اور Concept میں کیا فرق ہے؟

v. What is difference between Nominal and Ordinal data?

v. Nominal اور Ordinal ڈیٹا میں کیا فرق ہے؟

Q.3. Give detailed answers of the following questions. **(3x10=30)**

i. Discuss in detail the method of survey research in social sciences.

i. سوشل سائنس میں سروے طریقہ تحقیق پر نوٹ لکھیں۔

ii. What is sampling? Discuss in detail the sampling techniques which can be employed by the researcher while she wants to collect.

ii. سیمپلنگ کیا ہے؟ محقق ڈیٹا اکھٹا کرنے کے لئے جو طریقہ کار استعمال کرتا ہے وہ تفصیل سے بیان کریں۔

iii. What steps are followed when a scientific research is conducted? Discuss all steps in detail procedure of a scientific research.

iii. سائنسی طریقہ تحقیق کے مراحل پر نوٹ لکھیں۔ تمام مراحل اور طریقہ کار پر تفصیل سے بحث کریں۔

UNIVERSITY OF THE PUNJAB

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

PAPER: Research Methods-II

Course Code: BSCS-401   Part–I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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. Subset of population
   (a)   Population   (b)   Sample
   (c)   Independent variable   (d)   A, B & C

i.   آبادی کے Subset کو Population کہتے ہیں۔
   (الف)   آبادی   (ب)   سیمپل
   (ج)   Independent Variable   (د)   الف،ب اور ج

ii. Sample is selected mathematically and dchances of selection are equal.
   (a)   Probability sampling   (b)   Non probability sampling
   (c)   Purposive sampling   (d)   A, B & C

ii.   ریاضیاتی طریقہ سے سیمپل کا انتخاب اور برابر مواقع
   (الف)   Probability sampling   (ب)   Non probability sampling
   (ج)   Purposive sampling   (د)   الف،ب اور ج

iii. In-depth interview and Focus groups are:
   (a)   Quantitative methods   (b)   Qualitative methods
   (c)   Mix methods   (d)   A, B & C

iii.   In-Depth انٹرویو اور فوکس گروپ ہیں۔
   (الف)   Quantitative methods   (ب)   Qualitative methods
   (ج)   Mix methods   (د)   الف،ب اور ج

iv. Representative sample
   (a)   Qualities of population   (b)   Qualities of sample
   (c)   Presentable   (d)   A, B & C

iv.   Representative سیمپل:
   (الف)   آبادی کی خصوصیات   (ب)   سیمپل کی خصوصیات
   (ج)   پیش کرنے کے قابل   (د)   الف،ب اور ج

v. Summated Rating scale is known as:
   (a)   Semantic differential scale   (b)   Likert scale
   (c)   Guttman scale   (d)   Thurstone scale

v.   Summated ریٹنگ سکیل کو کہا جاتا ہے:
   (الف)   Semantic differential سکیل   (ب)   Likert سکیل
   (ج)   Guttman سکیل   (د)   Thurstone سکیل

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UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Media Ethics & Laws
Course Code: BSCS-403   Part–I (Compulsory)

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

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Signature of Supdt.:

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

1) In Press Council of Pakistan there are

 a) 17 members

 b) 18 members

 c) 19 members

 d) 20 members

2) In The Press Council of Pakistan chairman is appointed by the

 a) Prime Minister of Pakistan
 b) President of Pakistan
 c) Chief Justice of Pakistan

3) CPNE stands for

----

4) Defamation is namely:

 a) Slander
 b) Libel
 c) Slander and Libel
 d) None of the above

5) Libel is

 a) Malicious defamatory oral joke
 b) Malicious defamatory written accusation
 c) False oral statement
 d) Injury

6) President Zia ul Haq established National Press Trust

 a) True

 b) False

7) PEMRA in an independent body and the Federal Government has no power to issue directives

 a) True
 b) False

8) The Hutchins Commission was formed by the Government of USA

 a) True
 b) False

9) In the Defamation Ordinance, 2002 "Any publication of statement made in the Federal or Provincial legislatures, reports, papers, notes and proceedings ordered to be published by either house of the Parliament or by the Provincial Assemblies, or relating to judicial proceedings ordered to be published by the court or any report, note or matter written or published by or under the authority of a Government." Is

 a) Qualified Privilege
 b) Absolute privilege
 c) None of the above

10) Press and Publication Ordinance was promulgated by President Ayub

 a) True
 b) False

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Advertising-I

Course Code: BSCS-408   Part–I (Compulsory)

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

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

1. Interlink is an advertising company of
   A. India
   B. Pakistan
   C. America
   D. Russia

2. Which of the following is not a stage in evolution of advertising:
   A. Identification
   B. Information
   C. Promotion
   D. pricing

3. which is not the classification of advertising objectives:
   A. To inform
   B. To remind
   C. To persuade
   D. To order

4. What is the overall objective of advertising
   A. To build customer relationship
   B. To build public relationship
   C. To build personal relationship
   D. To build press relationship

5. Individuals who have specific needs and for whom the communication must be specifically tailored is known as_____
   A. Audience
   B. People
   C. Community
   D. Target Audience

6. Marketing means:
   A. Buying
   B. Selling
   C. Buying & Selling
   D. Analyzing

7. With the advent of Internet, which one of these is considered the most influential medium for advertisement these days?
   A. Television
   B. Newspaper
   C. E-Commerce
   D. Radio

8. Digital marketing is same as
   A. Marketing through emails
   B. Marketing on Facebook
   C. Marketing on Twitter
   D. All of above

9. A slogan in promotion is used because:
   A. It makes you unique
   B. It grabs your attention
   C. It always reminds of a definite brand
   D. All of above

10. Which of these media is not used for advertisement?
    A. Newspapers
    B. Magazines
    C. Billboards
    D. Notebooks

P.T.O. for Urdu Version

UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....
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Signature of Supdt.:

PAPER: Public Relations-I
Course Code: BSCS-409   Part-I (Compulsory)

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

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.   Public Relations is a _____.
(a)   Staff Function   (b)   Management Function
(c)   Media Function   (d)   None of the above

ii.   _____ the barometer for public relations.
(a)   Public Opinion   (b)   Media Relations
(c)   Public Interest   (d)   All of the above

iii.   Public Relations is _____.
(a)   Communication Management   (b)   Image Management
(c)   Both A & B   (d)   None of the above

iv.   Media Relations is _____
(a)   Role in PR   (b)   Strategy in PR
(c)   Clout in PR   (d)   All of the above

v.   _____ is a PR role
(a)   Communication Liason   (b)   Dealing with Media
(c)   Both A & B   (d)   None of the above

vi.   _____ is called the father of public relations.
(a)   Edward Said   (b)   Edward Burnays
(c)   Noem Chomsky   (d)   Harold Lasswell.

vii.   Public Relations in Pakistan inherited from _____ of the 1947.
(a)   British Legacy   (b)   Indian Legacy
(c)   US Legacy   (d)   Turkish Legacy

viii.   PSA stands for:
(a)   Public Services manage   (b)   Pubc Service Analysis
(c)   Public Services Advertising (d)   Public Scanned Advertising

ix.   Information Services Academy is in:
(a)   Karachi   (b)   Lahore
(c)   Islamabad   (d)   Peshawar

x.   Symmetrical models in PR are based on:
(a)   Persuative Communication   (b)   Dialogue Communication
(c)   Both A & B   (d)   None of the above

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UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Small Business Management
Course Code: BBA-401   Part–I (Compulsory)

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

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 business if it is independently owned, operated, and financed; has fewer than 100 employees; and has relatively little impact on its industry:
   a. Small business
   b. Medium business
   c. Large business
   d. Semi-large business

2. The business philosophy of discovering what consumers want and then providing the good or service that will satisfy their needs:
   a. Cost concept
   b. Marketing concept
   c. Profit concept
   d. Operation concept

3. Businesses that provide services, rather than tangible goods:
   a. Trading sector
   b. Manufacturing sector
   c. Service sector
   d. None of the above

4. The practice of reducing the size of a firm's workforce:
   a. Downsizing
   b. Upsizing
   c. Reoperation
   d. None of the above

5. The facet of a business that is better than the competition's:
   a. Comparative advantage
   b. Competitive advantage
   c. Imperative advantage
   d. Least advantage

6. The replacement of existing products, processes, ideas, and businesses with new and better ones:
   a. Creative destruction
   b. Non-creative destruction
   c. Open destruction
   d. Close destruction

7. The valuable skills and knowledge that employees of a business possess:
   a. Fixed capital
   b. Intellectual capital
   c. Fluctuating capital
   d. Trading capital

8. The process of identifying opportunities for which marketable needs exist and assuming the risk of creating an organization to satisfy them:
   a. Entrepreneurship
   b. Entrepreneur
   c. Marketing
   d. Finance

9. The ongoing process of owning and operating an established business:
   a. Capital business management
   b. Small business management
   c. Marketing management
   d. None of the above

10. The small businessperson who purchases the franchise so as to sell the product or service of the franchisor:
    a. Franchisee
    b. Franchisor
    c. Marketer
    d. Operator

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Managerial Accounting
Course Code: BBA-404   Part–I (Compulsory)

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

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Signature of Supdt.:

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

1. Managerial accounting is used by:
   A) Internal users
   B) External users
   C) Stockbrokers
   D) Clients

2. Cost incurred in the past, before a decision is to be made, is called:
   A) Opportunity cost
   B) Sunk cost
   C) Direct cost
   D) Variable cost

3. Which of the following most likely to be a variable cost?
   A) Depreciation
   B) Cost of Material
   C) Rent
   D) Salary

4. The wages foregone when you give up your job to attend university full-time is an example of:
   A) Fixed cost
   B) Opportunity cost
   C) Sunk cost
   D) Direct cost

5. What is over applied?
   A) Actual overhead>Applied overhead
   B) Actual overhead<Applied overhead
   C) Actual overhead=Applied overhead
   D) None

6. In case of absorption costing, product cost includes:
   A) Variable cost
   B) Fixed cost
   C) Variable & Fixed cost
   D) None

7. What is contribution margin ratio?
   A) 1 - Sales/Variable cost
   B) 1 - Sales/Fixed cost
   C) 1 - Sales/Total cost
   D) All of the above.

8. Under or over applied arises when:
   A) Normal capacity=Production
   B) Normal capacity>Production
   C) Normal capacity<Production
   D) B & C

9. Conversion cost is the sum of:
   A) FOH and Direct Labor
   B) Cost and Profit
   C) FOH and Direct Material
   D) Direct Labor and Direct Material

10. Break-even point indicates the point at which:
    A) Firm earns profit
    B) Firms bears loss
    C) Firms neither makes any profit nor any loss
    D) None

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

Roll No. ....

PAPER: Managerial Accounting
Course Code: BBA-404   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 following Terms: (20)

1. Differentiate between a Fixed and a Flexible Budget.
2. Define 'Responsibility Centre'.
3. What is meant by Break-Even Point?
4. Define 'Standard Costing'.
5. Define 'Opportunity cost'.
6. Define the term Contribution Margin.
7. Define 'Direct costing'.
8. Define 'Differential cost'.
9. Define 'Activity-based Costing'.
10. Define Linear Programing.

Give answers to the following questions.   (3*10=30)

Q.3. A company is considering whether to agree to do a job for a customer. It has sufficient spare capacity to take on this job. To do the job, three different direct materials will be required, Material X, Material Y and Material Z.

Data relating to these materials is as follows:

Material	Units needed	Units in Stock	Original cost of stock Rs. per unit	Current purchase price Rs. per unit	Current disposal value Rs. per unit
X	800	200	20	23	22
Y	600	400	15	19	12
Z	500	300	30	40	20

Material X is regularly used by the company for other work. Material Y is no longer in regular use, and the units currently in stock have no alternative use. Material Z is also no longer in use, but if the existing stocks of material are not used for this job, they can be used as a substitute material on a different job, where the contribution(saving) would be Rs.25 per unit of Material Z used.

Required:
Calculate the total relevant costs of the materials for this job.

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Examination: B.S. 4 Years Program

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

SHORT QUESTIONS [5×4=20 Marks]

Q.2   Give short answers to the following terms:

   a) Interim report of a public company.

   b) Notes to the financial statements.

   c) DuPont analysis.

   d) Differentiate between liquidity and solvency.

   e) Importance of activity ratios.

LONG QUESTIONS [10×3=30 Marks]

Q.3   Which financial ratios would you most likely to consult if you were the following? Why?

   i.   As an equity investor
   ii.   The president of a consumer products firm
   iii.   As a banker considering the financing of seasonal inventory

Q.4   Answer to the following questions:

   a.   Net working capital of a company is $250000. Now the company has paid in advance insurance premium of $20000. What is the impact of this transaction on the company's net working capital?

   b.   Calculate Return on Equity (ROE) by using DuPont analysis if assets turnover is 2, net profit margin is 10%, total assets are $400000, and total liabilities are $200000.

Q.5   Complete the following Balance Sheet

Assets	Amount $	Liabilities & Owner's Equity	Amount $
Cash		Accounts payable	100
Accounts receivable		Long-term debt	
Inventories		Total liabilities	
Current assets		Common equity	
Net fixed assets	1500		
Total		Total	2100

Additional Information:
Current ratio: 6.0
Debt ratio: 20%
Total assets turnover: 1.0
Average collection period: 30 days
Gross profit margin: 15%
Inventory turnover: 8 times
Calculation must be based on a 365- day year

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Financial Analysis
Course Code: BBA-405 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 total assets are $100000 & total Liabilities are $40000, how much is stockholder's equity?
   a. $140000
   b. $60000
   c. $40000
   d. $100000

2. Which of the following is called a real account?
   a. Sales revenue
   b. Advertising expense
   c. Accounts receivable
   d. Cash dividends

3. A statement which shows only cash transactions related to a business firm is:
   a. Income statement
   b. Retained earnings statement
   c. Balance sheet
   d. Statement of cash flows

4. If we multiply assets turnover with net profit margin, the resulting figure would be:
   a. DuPont return on assets
   b. DuPont return on equity
   c. Return on net worth
   d. None of the above

5. Which of the following is called non-cash expense?
   a. Interest expense
   b. Dividend payments
   c. Amortization of intangible asset
   d. All of the above

6. Which of the financial statements recognizes only transactions in which cash changes hands
   (a) Cash flow statement
   (b) Balance sheet
   (c) Income Statement
   (d) A & B

7. Economic value added (EVA) is also known as?
   (a) Excess Capacity
   (b) Residual Value
   (c) Excess Income
   (d) Accounting value added

8. Which is permanent account?
   (a) Revenue
   (b) Advertising Expense
   (c) Account Receivable
   (d) Dividend

9. Which Party has the primary responsibility for Financial Statement?
   (a) Book Keeper
   (b) Share Holder
   (c) Auditor
   (d) Management

10. The Current Assets section of the Balance Sheet should include:
    (a) Land
    (b) Sundry Creditor
    (c) Patent
    (d) Inventory

UNIVERSITY OF THE PUNJAB

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

PAPER: Sales Management

Course Code: BBA-406   Part–I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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.No.1.Encircle the Most Appropriate Answer of the following: (10x1=10)

1. Which of the following statements is true about sales?
   a) Sales and management activities are integrated and both enhance the affectivity of each other.
   b) Sales and management are differentiated and both works in their specific directions without complementing each other.
   c) None of the above

2. When the company uses a low pricing strategy to maximize sales, it is using a _____ Strategy.
   a) Price skimming   b) Penetration pricing
   c) Leader pricing   d) Prestige pricing

3. Which of the following is true about the role of sales managers?
   a) The role of sales manager is perceived to be unnecessary.
   b) The role of sales manager is getting limited.
   c) The role of sales manager has broadened and become more responsible.

4. Salespeople whose main task is to persuade influencers are called as
a. Missionaries   b. Order takers
c. Order makers   d. Order creators

5. Which of the following is not a major form of direct marketing?
a. Online shopping   b. Direct mail marketing..
c. Through Intermediary   d. None of these

6. The use of reference selling in industrial selling can be highly successful since it reduces the *greatest* perceived risk for which of the following?
   a) Current buyer   b) Ex-buyer
   c) Potential buyer   d) None of the above

7. What the lifecycle cost analysis seeks to focus on?
   a) From the total cost of owning and using a product to the initial purchase price perspective.
   b) From initial purchase price to the total cost of owning and using a product.
   c) No Focus on change
   d) None of the above

8. Which of the following best describes cold calling?

a. Viral advertising   b. Public relations activity

c. Advertising   d. Sales people contacting potential customers.

9. Which of the following types the salesman is under greater obligation to provide product information.
   a) New Task   b) Modified re-buy
   c) Straight re-buy   d) None of the above

10.Where advertisement alone is not able to do the job but instead a good role is supposed to be played by salesman in providing the client complete information about the product, the situation will be
   a) High Involvement situation   b) Moderate involvement situation
   c) Low involvement situation   d) None of the above

UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Strategic Human Resource Management
Course Code: BBA-408   Part–I (Compulsory)

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

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

1. Selection process typically begins with _____
   A.   Testing and reviewing work samples
   B.   Interviewing candidates
   C.   Screening applications and resumes
   D.   Checking references and background

2. The extent to which something provides economic value greater than its cost is called_____.
   A. Reliability
   B. Validity
   C. Generalizability
   D. Utility

3. Which of the following include/s in determining effectiveness of a performance measure?
   A. Fit with strategy
   B. Acceptability
   C. Validity
   D. All the above

4. The purpose/s of performance management system is/are_____.
   A. Operational
   B. Administrative
   C. Strategic
   D. Both B&C

5. _____is the extent to which performance on a measure is related to what the measure is designed to assess.
   A. Reliability
   B. Validity
   C. Generalizability
   D. Utility

6. Contracting with another organization to perform a broad set of services is known as_____.
   A. Offshoring
   B. Outsourcing
   C. Both A & B
   D. None of the above

7. _____is defined as a training method that represents a real-life situation, with trainees making decisions resulting in outcomes that mirror what would happen on the job.
   A. Experiential program
   B. Simulation
   C. Apprenticeship
   D. Internship

8. Personnel policies are designed to promote _____ in an organization.
   A. Fair decision making
   B. Customer service
   C. Workplace safety
   D. All of the above

9. The basic managerial skill(s) is (are).
   A. To supervise
   B. To motivate
   C. To stimulate
   D. All of the above

10. Performance development plan is set for the employees by_____.
    A. Employer
    B. Department head
    C. Immediate boss
    D. All of the above

UNIVERSITY OF THE PUNJAB

Seventh Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Organizational Development

Course Code: BBA-409   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 words organization development refers to something about organizations and _____ them
   a) Administrating   (c) Managing
   b) Developing   (d) None of these

2. The second stem of OD evolution is:
   a) Action research   (c) laboratory training
   b) Participative management   (d) strategic change

3. Who is called "Father of OD"
   a) Adam Smith   (c) Henry Fayol
   b) Kurt Lewin   (d) F.W Taylor

4. _____ are organized and shared ideas regarding what members should do and feet.
   a) Culture   (c) behavior
   b) Norms   (d) None of these

5. A psychological contract may be defined as an _____ agreement between individual the organization of which thye are members.
   a) Unwritten   (c) Unwanted
   b) Unusual   (d) None of these

6. The self-contained-unit organization represents different way of;
   a) Organizing   (c) Structure
   b) Management   (d) None of these;

7. The consultant works with the leader and group to diagnose strengths and weaknesses in;
   a) Doctor- patient model
   b) Process consultation model
   c) Purchase of expertise model
   d) All of the above

8. An OD program is long-range and;
   a) Short range   (c) Both A&B
   b) Sustained   (d) Complex

9. Customary and traditional way of thinking and doing things is known as;
   (a) Organizational structure   (c) Organizational culture
   (b) Leadership   (d) Change

10. Organized and shared ideas regarding what members should do and feel are;
    (a) Beliefs   (c) Paradigms
    (b) Attitudes   (d) Norms

UNIVERSITY OF THE PUNJAB

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

PAPER: Organizational Development
Course Code: BBA-409   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. Differentiate between organizational development and organizational capacity building.
2. Define change management.
3. What are various forces responsible for change in organizations?
4. What do you understand by OD practitioner?
5. Write short note on leading the change.
6. Define characteristics of ideal, healthy and effective organizations.
7. "People resist change for the sake of resistance" Comment.
8. Define systems theory.
9. Draw the diagram of techno-structural approach.
10. Explain important aspects of socialization when joining an organization?

Q3: Give answers of the following questions.   **(3X10=30)**

1. 'The focus of OD is on Organizations and making them functions better, that is, on total system change'. Elaborate the comment. What are the goals of an OD program?
2. How is organizational culture created and sustained? Discuss in detail!
3. Explain various types of OD Interventions with examples.

UNIVERSITY OF THE PUNJAB

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

PAPER: Air Pollution its Impacts and Control
Course Code: BOT-401   Part–I (Compulsory)

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

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 deep blanket of gases and suspended liquids and solids that entirely envelop the earth is called:

(a) Troposphere   (b) Atmosphere   (c) Stratosphere   (d) Mesosphere

(ii) Which of the following is a greenhouse gas?

(a) Nitrogen   (b) Methane   (c) Argon   (d) Oxygen

(iii) Ozone is formed in the upper atmosphere by a photochemical reaction of oxygen with

(a) Ultra-violet radiation   (b) Infra-red radiation   (c) Visible light   (d) All of the above

(iv) The first Nuclear Test in Pakistan was carried out on

(a) 18-May 1988   (b) 28-May 1998   (c) 8-May 1998   (d) 28-May 2001

(v) The function of automobile catalytic converter is to control emissions of

(a) CO_2 & H   (b) CO & H   (c) CO_2 & CO   (d) CO & NO_2

(vi) CFCs are responsible for

(a) Auroras   (b) Depletion of Stratospheric Ozone   (c) Creating Smog   (d) Acid Rain

(vii) The law that regulates Air Pollution is known as

(a) Air Quality Control Act   (b) Atmospheric Pollution Law
(b) Clean Air Act   (d) None of a, b or c

(viii) The phenomenon of Acid Rain is·

(a) Global   (b) Local   (c) Regional   (d) National

(ix) Radiation that can travel only a few centimeters in the air is

(a) Beta Particles   (b) Alpha Particles   (c) Gamma Rays   (d) Corpuscular radiation

(x) Amount of energy present in residual nuclear radiations after atomic explosion is

(a) 8%   (b) 10%   (c) 12%   (d) 15%

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Biohazards, Biosafety, Bioethics
Course Code: BOT-403   Part–I (Compulsory)

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

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Signature of Supdt.:

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

I. Dolly was cloned in
   a) England   b) Germany   c) Scotland   d) Australia

II. The stem cells could be stimulated to differentiate into more than ---------- cell types

   (A) 100   (B) 200

   (C) 300   (D) 400

III   In 1994 US food has approved first genetically modified

   (A) Tomato   (B) Potato

   (C) Rice   (D) Wheat

IV   High level respiratory filter used in biosafety method is

   (A) N 95   (B) N 94

   (C) N 93   (D) N 90

V   *Thermus aquaticus* is present in hot springs where temperature is ° C

   (A) 120   (B) 130

   (C) 135   (D) 140

VI Alcohol used for Aseptic environment is

   (A) 50%   (B) 70%

   (C) 60%   (D) 20%

VII   Smallest virus is

   (A) Polio   (B) Small pox

   (C) Influenza   (D) AIDS

VIII   Protozoans cause

   (A) Amoebic dysentary   (B) Pyorrhoea

   (C) Sleeping sickness   (D) A + B + C

IX. . Most dangerous waste is

   a) Solid waste   b) Liquid waste   c) Hospital waste   d) house hold waste

X. How much percentage of aqueous solution of phenol rapidly kills the vegetative cells of microorganisms?

UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Plant Nutrition and Soil Fertility
Course Code: BOT-405   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) Nitrogen fixation by micro-organisms is called

(a) Industrial Nitrogen Fixation   (b) Biological Nitrogen Fixation
(c) Atmospheric Nitrogen Fixation   (d) Both b and c

(ii) Water is a medium and matrix of living things because of its

(a) Great Heat Capacity   (b) High Surface Tension   (c) Best Solvent   (d) All a, b and c

(iii) Proportion of Nitrogen in plant protein is approximately

(a) 18%   (b) 15%   (c) 20%   (d) 25%

(iv) Bacteria involved in symbiotic nitrogen fixation in root nodules of legumes is

(a) Rhizobium   (b) Clostridium   (c) Azobacter   (d) Actinomycetes

(v) General chlorosis and etiolated habit are characteristic deficiency symptoms of

(a) Nitrogen   (b) Sulpher   (c) Iron   (d) all a, b and c

(vi) Nitrogen fixation in the nitrogen cycle is brought about by

(a) Lightening   (b) Symbiosis   (c) Free Fixing organism   (d) All a, b and c

(vii) Which of the following is a micronutrient?

(a) Co   (b) Cd   (c) P   (d) Zn

(viii) Gravel has particle size

(b) 0.2 mm – 2 mm   (b) 0.02 mm – 0.2 mm   (c) > 2 mm   (d) 0.002 mm – 0.02 mm

(ix) What is percentage proportion of Nitrogen fixed by Microorganisms?

(a) 50%   (b) 20%   (c) 40%   (d) 90%

(x) Which nutrient is considered as constituent of Nucleic Acid, Nucleotides and Co-enzymes?

(b) P   (b) Si   (c) N   (d) S

UNIVERSITY OF THE PUNJAB

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

Roll No. ....

PAPER: Biodegradation and Bioremediation
Course Code: BOT-407   Part – II

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

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2.   Explain the following with examples.   **(10x2=20)**

1. What do you mean by organotrophic bacteria?

2. Write down the basic requirements for bacterial growth during Bioremediation?

3. Describe the Process of Sorption and its Effects on Biodegradation.

4. Describe the Role of Co-metabolism in Bioremediation

5. What is ACTIVATION? Enlist mechanisms involve in ACTIVATION.

6. What is meant by detoxification? Enlist mechanisms may involve in detoxification.

7. Describe the process of sorption and its effect on biodegradation.

8. Describe the Effects of Heavy Metals on Environment?

9. What is meant by bioreactor-based method of bioremediation?

10. What is detoxification? Enlist mechanisms may involve in detoxification.

Q.3.   Questions with brief answers   **(6x5=30)**

i.   (a) Write a note on anthropogenic impact on environmental pollution?   **(05 Marks)**

   (b) What is the role of Genetic modification for bioremediation process?   **(05 Marks)**

ii.   (a) Define Xenobiotics and their role in our environment.   **(05 Marks)**

   (b) Write a note on biocatalyst selection for bioremediation.   **(05 Marks)**

iii.   (a) Define Biotechnology; describe its role for the removal of pollutants.   **(05 Marks)**

   (b) What are plasmid, explain the function of catabolic plasmid for Biodegradation
                                                                              (05 Marks)

UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Biodegradation and Bioremediation
Course Code: BOT-407   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 use of microorganisms to degrade environmental pollutants is known as:

    A. Biostimulation   C. Biotransformation

    B. Bioremediation   D. All of these

2. Microorganisms remove metals by

    A. Adsorption   C. Complexion

    B. Formation of new compounds   D. All of these

3. Which cleanup approach involves removing groundwater or soil from its natural setting to allow for bioremediation?

    A) In situ bioremediation   B) Ex situ bioremediation

    C) Bioaugmentation   D) Phytoremediation

4. Which of the following waste water treatments is most likely to produce carcinogens as a byproduct?

    A. Chlorination   B. Ultraviolet light (UV)

    C. Sand filtration   D. Carbon filtration

5. The enzyme nitrogenase is produced by n:

    A. Pathogenic bacteria   B. Anaerobic bacteria

    C. Cyanobacteria   D. Both B&C

6. A major organism used in commercial bioleaching for copper recovery is:

    A. *Desulfovibrio desulfuricans*   B. *Pseudomonas aeruginosa*

    C. *Aspergillus niger*   D. *Thiobacillus ferrooxidans*

7. Organophosphate pesticides can be detoxified by which enzymes of microbes.

    A. Reductase   B. Oxidases   C. Hydrolases   D. Oxygenases

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

    A. Gene mapping   B. Karyotype   C. Gene coding   D. Gene linkage

9. Anaerobic bacteria often play important roles in bioremediation. Which of the following is not an electron acceptor used by anaerobes during biodegradation reactions?

    A. CO_2 B. NO_3^- C. Fe (III)   D. H_2O

10. During which stage of wastewater treatment is the primary effluent aerated to allow for biodegradation by aerobic microbes?

    A. Sedimentation   B. Secondary treatment   C. Sludge digestion

    A. Disinfection   E. Primary treatment

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Physical Chemistry (Sp. Theory-I)
Course Code: CEHM-403   Part–I (Compulsory)

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

Signature of Supdt.:

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

(i)   When gas is weakly adsorbed on the solid surface the rate of reaction depends upon

(a) Temperature of gas

(b) Pressure of gas

(c) Volume of gas

(d) None of these

(ii)   Langmuir Adsorption isotherm for single system is

(a) $Q = \dfrac{p}{1 + p}$

(b) $Q = \dfrac{bp}{1 + dp}$

(c) $Q = \dfrac{p}{1 + bp}$

(d) $Q = bp$

(iii)   Tempkin adsorption isotherm is used for the decomposition of

(a) CO

(b) CO_2

(c) NH_3

(d) both (a) & (b)

(iv)   When the value of h/f is equal to zero then the equation will be

(a) $R = K$

(b) $R = 1$

(c) $R_{(Decomposition)NH_3} = 0$

(d) $R_{(Decomposition)NH_3} = Kd$

(v)   A type of catalysis in which one of the products formed act as catalyst is called

(a) Auto - catalysis

(b) Enzyme catalysis

(c) Acid – base catalysis

(d) None of these

(vi)   The "Inhibition" in which complex formation does not occur is

(a) Competitive inhibition

(b) Un-Competitive inhibition

(c) Both (a) & (b)

(d) None of these

(vii)   When gas is strongly adsorbed on the solid surface the order of reaction is

(a) Zero order reaction

(b) 1st order reaction

(c) 2nd order reaction

(d) 3rd order reaction

(viii)   In Eiley-Rideal mechanism the number of reactants adsorbed on catalyst surface is

(a) One

(b) Two

(c) Three

(d) Zero

(ix)   Vanishing cream is example of

(a) Water in oil emulsion

(b) Oil in oil emulsion

(c) Oil in water emulsion

(d) None of these

(x)   By increasing pressure the adsorption of gas

(a) Increases

(b) Decreases

(c) Remains same

(d) None of these

UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Physical Chemistry (Sp. Theory-II)
Course Code: CEHM-404   Part–I (Compulsory)

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

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

1-Which one of the following is correct for lyophilic sols?

(a) irreversible   (b) formed by inorganic substances

(c) self-stabilized   (d) all

2- Medicines that instruct you to shake the bottle well before use are most likely

(a) Solution   (b)Suspensions   (c) Colloids   (d)none of these

3-Which of the following statement is true regarding K_m?

(a) It is the measure of stability of ES   (b) It is the measure of stability of the affinity of an enzyme

(c)A high k_m indicates weak substrate binding   (d) All of above

4- Solution is said to be ideal if it obeys

(a) Gas laws   (b) Faraday's laws   (c) Roults law   (d) None of these

5- Chemical adsorption is ....

(a) monolayer   (b) Multilayer   (c) both a and b   (d) none of these

6-Following is an example of emission process

(a) Flouresence   (b) Phosphoresence   (c) both, a and b   (d) none

7-Conversion of spin state takes place in ---------

(a) Flouresence   (b) Phosphoresence   (c) both, a and b   (d) none

8- In Freundlich adsorption isotherm plot of log x/m verses log P is linear with slop.

(a) 1 /n   (b) n   (c) log k   (d) k

9- Frequency of absorption usually---------- than frequency of corresponding emission.

(a) Greater   b) Lower   c) Equal   d) none

10- The colouring matter is removed by animal charcoal during purification of sugar. In this case sugar act as

a) adsorbate   b) adsorbent   c) absorbance   d) catalyst

UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Inorganic Chemistry (Sp. Theory-I)
Course Code: CHEM-406   Part–I (Compulsory)

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

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) An advantage of organic reagent in inorganic analysis is:
(a) Ease of handling   (b) Volatility   (c) Presence of impurity   (d) High molecular weight

(2) Which is/are monodentate ligand(s)
(a) Chloro   (b) Aqua   (c) Oxime   (d) Both (a) and (b)

(3) Which has a $d\pi - p\pi$ bond:
(a) PCl_5 (b) $(CH_3)_3PO$ (c) $(CH_3)_3NO$ (d) SF_4

(4) 8-hydroxyquinoline is also known as
(a) oxine   (b) brine   (c) Saline   (d) Nessler's reagent

(5) Lone pair occupies equatorial position rather than axial (apical) position in:
(a) Tetrahedral   (b) Square planar   (c) Trigonal bipyramidal   (d) Bent/angular

(6) The element that can make trivalent positive ion is:
(a) Boron from group IIIA
(c) Bismuth from group VA
(b) Tin from group IVA
(d) Selenium from group VIA

(7) The stretching frequency of $C \equiv O$ in the bridging carbonyl ligands in metal carbonyls is approximately:
(a) $2155 cm^{-1}$ (b) $2125 - 1850 cm^{-1}$ (c) $1800 cm^{-1}$ (d) $2000 cm^{-1}$

(8) The strongest $p\pi - p\pi$ is:
(a) Si = Si   (b) C = C   (c) C = Si   (d) Ge = Ge

(9) _____ explains geometries and electronic spectra of small molecules:
(a) Walsh diagrams (b) Molecular Orbital theory   (c) Valence bond theory   (d) Multicentred bonding

(10) The symmetry of $BeCl_2$ is represented by the point group
(a) C_{2v} (b) C_{3v} (c) $D_{\infty h}$ (d) T_d

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Inorganic Chemistry (Sp. Theory-II)
Course Code: CHEM-407   Part–I (Compulsory)

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

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Signature of Supdt.:

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

(i) BF_3 dissolves in NH_3 due to:

    a) Ion-dipole interactions   b) dipole forces   c) hydrogen bonding   d) co-ordinate bonding

(ii) Mixing of $Ba(NO_3)_2$ and $AgCl$ will give precipitates of _____ in liq. NH_3.

    a) $AgCl$ b) $BaCl_2$ c) $AgNO_3$ d) $Ba(NO_3)_2$

(iii) High temperature superconductors are:

    a) $YBa_2Cr_3O_7$ b) $CaTiO_3$ c) $MgAl_2O_4$ d) all of these

(iv) Dielectric constant of NH_3 is:

    a) 78.5   b) 22.0   c) 17.3   d) 83.6

(v) The element used for dating in ancient remains is:

    a) C-14   b) Ni   c) C-12   d) N

(vi) Which is not a parent nuclide?

    a) Uranium-238   b) lead-206   c) uranium-235   d) thorium-232

(vii) What is the half-life of an isotope if 125g of a 500g sample of the isotope remains after 3 years?

    a) 1.5 years   b) 2.5 years   c) 3.5 years   d) 4.5 years

(viii) Which of the following has greatest penetrating power?

    a) Alpha particles   b) beta particles   c) gamma rays   d) all show same power

(ix) Pick out the oxide which is not acidic:

    a) SiO_2 b) P_4O_{10} c) SO_2 d) MgO

(x) Moving across the period basic character of oxides:

    a) Increases   b) remains same   c) decreases   d) become zero

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Organic Chemistry (Sp. Theory-I)
Course Code: CHEM-409   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. Molecular Rearrangement can occurs in
   a) E1
   b) E2
   c) S_N1
   d) Both E1 and S_N1

II. Which of the product is predominant in Saitsev's Rule
   a) Less substituted alkenes
   b) More substituted alkenes
   c) Unsubstituted alkenes
   d) None of these

III. In S_N2 substitution, the correct order of reactivity as nucleophile is
   a) $^-OR > ^-QH > H_2O$
   b) $H_2O > ^-OR > ^-OH$
   c) $^-OH > ^-OR > H_2O$
   d) $H_2O > ^-OH > ^-OR$

IV. Among the followings which one is the best leaving group
   a) Fluoride
   b) Chloride
   c) Bromide
   d) Iodide

V. The weak base (often the solvent) takes part in
   a) Slow step of E1 reaction
   b) Fast step of E1 reaction
   c) Slow step of S_N1 reaction
   d) None of these

VI. The β- elimination reactions occur in
   a) E1
   b) E2
   c) E1CB
   d) All the three

VII. In S_N1 reaction if the concentration of nucleophile is doubled, the reaction rate will
   a) Remain the same.
   b) Increase
   c) Decrease
   d) First increase then decrease

VIII. In which solvent the rate of S_N1 reaction will be highest?
   a) 100 % water
   b) 50 % water + 50 % methanol
   c) 20 % water + 80 % methanol
   d) 100 % methanol

IX. E2 reaction is a
   a) Zero order reaction
   b) First order reaction
   c) Second order reaction
   d) Third order reaction

X. Among the following which will be the major product for the reaction of 2-bromobutane with sodium ethoxide.
   a) 2-Butene
   b) 1-Butene
   c) Ethene
   d) Propene

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Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Organic Chemistry (Sp. Theory-II)
Course Code: CHEM-410   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) Which is most reactive in aromatic electrophilic substitution?
a) Ethyl benzene
b) Methoxybnenzene
c) Chlorobenzene
d) Acetophenone

II) Which of the following is least reactive for halogenation of benzene?
a) F_2
b) Cl_2
c) Br_2
d) I_2

III) The reaction in which benzene reacts with alkyl halide in presence of a lewis acid as a catalyst to produce alkylbenzene is known as
a) Nitration
b) Halogenation
c) Friedel-Crafts Acylation
d) Friedel-Crafts Alkylation

IV) Which of the following reactions are favored by polar aprotic solvent?
a) S_N1 reactions
b) S_N2 reactions
c) Both S_N1 and S_N1 reactions
d) None of the mentioned

V) Which types of isomers are formed in rearrangement reactions?
a) Structural isomers
b) Geometrical isomers
c) Optical isomers
d) Conformational isomers

VI) The benzylic acid rearrangement reaction of a cyclic diketone leads to
a) Ring expansion
b) Ring contraction
c) Ring fusion
d) None of these

P.T.O.

UNIVERSITY OF THE PUNJAB

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

PAPER: Analytical Chemistry (Sp. Theory-I)
Course Code: CHEM-412   Part – II

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

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2- Attempt allShort questions: (2x10=20)

(i) What are the advantages of thermal conductivity detector?

(ii)- What do you understand by temperature programming in gas chromatographic analysis?

(iii) -. What are the disadvantages of H_2 as carrier gas in gas chromatography?

(iv)- Define retention time. On what factors does it depend?

(v) Write down the principles of TGA and DTA.

(vi)- Give difference between normal phase chromatography and reverse phase chromatography.

(vii) What is the role of liquid junction potential in potentiometery?

(viii)- What are the Characteristics of an ideal reference electrode?

(ix) Briefly describe the principle involved in potentiometric titrations.

(x) What is DTA curve? Give its characteristics.

Q.3   (a) DiscussOpen Tubular Columns in gas chromatography. (5)

(b) Discuss the construction and working of saturated Calomel electrode (5)

Q.4   (a) Discuss various types of columns in HPLC. (5)

(b) Explain solid state membrane electrodes in potentiometry. (5)

Q.5   (a) Write down the applications of differential scanning calorimetry(DSC) (5)

(b) Explain the working of Electron Capture Detector in gas Chromatography. (5)

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Examination: B.S. 4 Years Program

Roll No. in Fig. ....

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

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Signature of Supdt.:

PAPER: Analytical Chemistry (Sp. Theory-I)
Course Code: CHEM-412   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.

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

(i)- Which of the following phenomena taking place in DTA is exothermic?

(a) Reduction (b) Vaporization (c) Desorption (d) Chemisorption

(ii)- In thermo gravimetric analysis, the result obtained appears as a _____.

(a) Continuous chart   (b) Continuous parabola

(c) Continuous circular positions   (d) Discontinuous chart

(iii)- The radioactive β emitter usually used in electron capture detector is

(a) Zn^{64}. (b) Cu^{62} (c) Co^{59} (d) Ni^{63}.

(iv)- Which is not the quality of open tubular column?

(a) Shorter analysis time   (b) Higher resolution measured

(c) Higher sample capacity (d) Greater sensitivity

(v)- Which gas possesses the highest thermal conductivity?

(a) H_2 (b) O_2 (c) CO_2 (d) Ar

(vi)- Electrodes used in potentiometric titrations are?

(a) 2   (b) 3   (c) 1 (d) 4

(vii) Which stationary phase is used for separation of basic compounds at pH 8–12 in HPLC?

(a) Silica gel   (b) Alumina (c) Polystyrene   (d) $MgSO_4$

(viii) Syringe pumps used in HPLC are most suitable for which of the following column

(a) Capillary column   (b) Small bore column

(c) Short-fast column (d) Guard column

(ix)- Which one is the most common separation mode in HPLC?

(a) Reversed-phase mode   (b) Normal-phase mode

(c) Ligand exchange mode   (d) Ion exchange mode

(x)- . A glass membrane with a composition of 11% Na_2O, 18% Al_2O_3, and 71% SiO_2 is used as an ion-selective electrode for

(a) Al^{3+} (b) H^+ (c) K^+ (d)) Na^+

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PAPER: Analytical Chemistry (Sp. Theory-II)
Course Code: CHEM-413   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)-   If there is 1% transmittance, what is the value of absorbance

   (a)   99   b) zero   c)   100   d)   2

(ii)-   Which of the following molecules will not show an infrared spectrum?

   (a) N_2 b) CO_2 c) CO   d) H_2O

(iii)-   Which substance is both IR & Raman active

   (a) CO_2 b) CH_4 c) N_2 d) H_2

(iv)-   The time required for vibrational relaxation is

   (a) 10^{-2} to 10^{-1} sec   (b) 10^{11} to 10^{14} sec

   (c) 10^{-14} to 10^{-11} sec   d) 10^{12} to 10^{13} sec

(v)   In ICP-AES, Nebulizer convert liquid into

   (a)) aerosol   (b)   droplet   c)   solid particles   d)   all

(vi)   Vibrational stretching frequency depends upon:

   (a)   atomic population   b)   temperature

   (c)   magnetic field   (d)   Force constant

(vii)   Scattering efficiency in Raman increases in presence of

   (a)   red light   b)   Blue light   c)   orange light   (d)   green light

(viii)   What is the wavelength range of H_2 and D_2 lamp?

   (a)   07-10 um   b) $0.1A^o$-$0.3A^o$ (c)   200-1000 nm   (d)   160-380 nm

(ix)   Which of the following source is suitable only for UV molecular absorption?

   (a) D_2 lamp   (b)   Tungsten/halogen lamp

   (c)   Xenon arc lamp   (d)   Tungsten lamp

(x)   Only one vibration exists in

   (a)   Diatomic molecule   (b) Linear triatomic molecule
   (c)   Nonlinear triatomic molecule   (d) Single atom

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Roll No. ....

PAPER: Analytical Chemistry (Sp. Theory-II)
Course Code: CHEM-413   Part – II

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

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2   Attempt all Short questions   (2x10=20)

(i)   Distinguish between Raman scattering and Rayleigh scattering.

(ii)   Differentiate between vibrational deactivation and internal conversion.

(iii)   How axial torch and radial torch in ICP-AES differ?

(iv)   What is meant by allowed transitions and forbidden transitions in UV/Visible spectroscopy?

(v)   Write down the advantages and disadvantages of ICP-AES.

(vi)   Give the disadvantages of coloured glass filters in UV spectroscopy.

(vii)   What are the differences between IR spectrum and Raman spectrum?

(viii)   Explain that mostly IR active vibrational modes are Raman inactive and vice versa?

(ix)   How thermal detectors and photon detectors differ in their operation in FTIR spectroscopy?

(x)   Describe Kasha's Rule and Mirror Image Rule in Fluorescence?

Q.3(a) Explain various components of Raman spectrometer.   (5)

(b)   Write down the quantitative applications of UV/Visible spectroscopy.   (5)

Q.4(a) Draw Jablonski energy diagram and discuss it's various phenomena.   (5)

(b)   Explain different zones present in ICP plasma.   (5)

Q.5(a) Discuss the working and advantages of Photo multiplier tubes detector.   (5)

(b)   Discuss the working of FTIR Spectrometer.   (5)

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PAPER: Applied Chemistry (Sp. Theory-I)
Course Code: CHEM-415   Part–I (Compulsory)

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

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 one of following is fraction of petroleum?

(a)   Anthracite   (b)   Gasoline

(c)   Lignite   (d)   Peat

2. Which of the following is acidic digestion process?

(a)   Sulfite   (b)   Sulfate

(c)   Soda process   (d)   None of these

3. Which of the following is micronutrient for plants?

(a)   Nitrogen   (b)   Sulfur

(c)   Zinc   (d)   Phosphorous

4. Formation of Cartons form pulp can be successfully done in

(a)   Cyclinderical machine   (b)   Fourdriener machine

(c)   Both a and b   (d)   Vibrational machine

5. Which of the following process was developed in order to avoid the use of TEL

(a)   Catalytic cracking   (b)   Catalytic reforming

(c)   MEL addition   (d)   TML addition

6. Among following, in which form, plants can incorporate Nitrogen?

(a) NO_2^{-1} (b) NO_3^{-1}

(c) N_2 (d)   Urea

7. Which of the following solid fertilizer contains highest contents of Nitrogen?

(a)   Ammonium nitrate   (b)   Ammonia

(c)   Calcium cyanide   (d)   Urea

8. Which process is used for converting straight chain hydrocarbons into branched hydrocarbons?

(a)   Cracking   (b)   Reforming

(c)   Aromatization   (d)   Nitration

9. Newspaper can be recycled maximum

(a)   Two times   (b)   four times

(c)   Three times   (d)   Five times

10. Which parameter is indicative of fuel quality?

(a)   Iodine number   (b)   Octane number

(c)   Saponification number   (d)   Cetane number

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PAPER: Bio Chemistry (Sp. Theory-I)
Course Code: CHEM-418   Part–I (Compulsory)

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

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. Gigantism, a disease of accelerated growth, can be caused by primary tumors of the anterior pituitary gland. In patients with tumor-induced gigantism, levels of growth-hormone-releasing factor would expected to be:

    A: Lower than usual
    C: Higher than usual
    B: Unchanged
    D: Differ by tumor size

2. Cori's, McArdle's, von Gierke's and Andersen's diseases are all examples of:

    A: Glycogenolysis
    C: Glycogenosis
    B: Gluconeogenesis
    D: Glycogenesis

3. Which of the following is important in transferring energy from the glycolytic pathway to the TCA cycle?

    A: NADH   B: FADH2   C: Citrate   D: Acetyl CoA

4. Glucose-1-phosphate is produced from glycogen via:

    A: Oxidative Phosphorylation
    C: Glycogen Kinase Activity
    B: Substrate Phosphorylation
    D: Phosphorolysis

5. Fatty acid oxidation occurs in:

    A: Cytoplasm
    C: Mitochondria
    B: Microsomes
    D: All of the above

6. A fatty acid that is not synthesized in man is:

    A: Linoleic acid
    C: Palmitic acid
    B: Oleic acid
    D: Stearic acid

7. Net ATP production of glycolysis is

    A: 2   B: 3   C: 4   D: 5

8. Largest endocrine gland in human body is called

    A: Parathyroid gland
    C: Pituitary gland
    B: Adrenal gland
    D: Thyroid gland

9. Every cycle of β-oxidation produces

    A: 1 FAD, 1 NAD+ and 2 CO2 molecules
    B: 1 FADH2, 1 NADH and 1 acetyl co-A
    C: 1 FADH2, 1 NAD+ and 1 acetyl co-A
    D: 1 FAD, 1 NADH and 2 CO2 molecules

10. The substance essential for transfer of fatty acids across mitochondrial membrane

    A: Creatine
    C: Carnitine
    B: Creatinine
    D: Coenzyme A

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Examination: B.S. 4 Years Program

Roll No. in Fig. ....

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PAPER: Bio Chemistry (Sp. Theory-II)
Course Code: CHEM-419   Part–I (Compulsory)

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

Signature of Supdt.:

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

1. Myoglobin functions as:

   a. Reservoir of Oxygen

   b. Oxygen Carrier

   c. Both a & b

   d. None of the above

2. Protein that actively participates in cell adhesion and cell migration is called:

   a. Elastin   b. Albumin   c. Fibrillin   d. Fibronectin

3. The second most abundant Ig is:

   a. IgM   b. IgA   c. IgG   d. IgE

4. IgM is a:

   a. Pentamer with 10 antigen binding sites

   b. Tetramer with 8 antigen binding sites

   c. Monomer with 2 antigen binding sites

   d. Dimer with 4 antigen binding sites

5. The Ig that mediates allergic reaction is:

   a. IgM   b. IgE   c. IgA   d. IgG

6. Fab stands for:

   a. Fragment antibody binding
   b. Fragment antigen binding
   c. Fragment antigen or antibody binding
   d. Fragment affinity binding

7. Which one of the following diseases is a communicable?

   a. Rickets   b. Cholera   c. Diabetes   d. Scurvy

8. Scurvy disease is caused by the deficiency of vitamin

   a. Vitamin A   b. Vitamin D   c. Vitamin K   d. Vitamin C

9. The eluent strength is a measure of:

   a. Solvent adsorption energy
   b. Solvent absorption energy
   c. Solvent diffusivity
   d. Solvent mixing index

10. HPLC stands for

   a. High Pressure Liquid Chromatography

   b. High Performance Liquid Chromatography

   c. both (a) and (b)

   d. Highly Placed Liquid Chromatography

UNIVERSITY OF THE PUNJAB
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Examination: B.S. 4 Years Program

Roll No. in Fig. ....

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PAPER: Human Resource Management
Course Code: COMM-402   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.

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

Roll No. ....

PAPER: Human Resource Management
Course Code: COMM-402   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. What is importance of HRM?
2. Differentiate between job specification and job description.
3. Define job enlargement.
4. What is trend analysis?
5. Differentiate between behavioral and situational interview.
6. Define observation.
7. Define programmed learning.
8. What is piece work plan?
9. Enlist errors that can undermine interview usefulness.
10. What is 'Big Five' model?

LONG QUESTION   (10x3=30)

Q3. Define Training and discuses methods of training.   (10)

Q4. What is potential appraisal problems and write down the guidelines for effective appraisal.
                    (10)

Q5. Briefly discuss the internal sources of recruitment.   (10)

levels is called
- A. Scatter plot
- B. Ratio analysis
- C. Trend analysis
- D. Both b and c

10. "The influence of a rater's general impression on ratings of specific rate qualities."
- A. Unclear Slandered
- B. Halo effect
- C. Recency effect
- D. Bias

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

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PAPER: Insurance & Risk Management
Course Code: COMM-403   Part–I (Compulsory)

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

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Signature of Supdt.:

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

1. A physical condition that increases the chance of loss is known as_____:
   A. Moral hazard
   B. Physical hazard
   C. Legal hazard
   D. Morale hazard

2. A risk that affects the entire economy is called:
   A. Pure risk
   B. Speculative risk
   C. Enterprise risk
   D. Fundamental risk

3. Which one of the following is not the method of handling risk?
   A. Insurance
   B. Non insurance transfer
   C. Active retention
   D. Direct transfer

4. When an individual is restored to his/her financial position prior to the occurrence of loss this state is known as_____
   A. Rehabilitation
   B. Indemnification
   C. Identification of loss
   D. Risk transfer

5. _____ is the arrangement by which the primary insurer that initially writes the insurance transfers to another insurer.
   A. Reinsurance
   B. Segregating
   C. Co-insurance
   D. All of the above

6. Risk Pooling is an example of:
   A. a Catastrophic Loss Event
   B. diversifying risk
   C. a speculate risk
   D. applying the risk-return trade-off

7. Ratemaking refers to the pricing of insurance. Insurance rates are determined by
   A. Insured
   B. coinsurer
   C. reinsurer
   D. actuaries

8. Sales and marketing in insurance referred to as
   A. Ratemaking
   B. underwriting
   C. production
   D. reinsurance

9. All of the following are claim adjustors except
   A. Agent
   B. company adjustor
   C. dependent adjustor
   D. public adjustor

10. The principle of indemnity states that insurer should not pay
    A. Actual loss
    B. more than actual loss
    C. less than actual loss
    D. none of above

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

PAPER: Managerial Economics
Course Code: COMM-404   Part–I (Compulsory)

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

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 is the best definition of managerial economics? Managerial economics is
   a.   a distinct field of economic theory.
   b.   a field that applies economic theory and the tools of decision sciences.
   c.   a field that combines economic theory and mathematics.
   d.   none of the above.

ii)   If $Z = 2X^3 + 5XY$, then the second order direct partial derivative Z_{xx} would be
   a.   5Y
   b. $6X^2$
   c.   5XY
   d.   12X

iii)   If a rise in supply exceeds a rise in demand, then we should expect
   a.   the equilibrium price and quantity levels will rise.
   b.   the equilibrium price will rise while the equilibrium quantity will decline.
   c.   The equilibrium price will fall while the equilibrium quantity will rise.
   d.   the equilibrium price and quantity levels will decline.

iv)   If both income elasticity of demand and price elasticity of demand are negative, the good is
   a.   A normal good
   b.   An inferior good
   c.   A Giffen Good
   d.   None of the above

v)   Isoquant for two substitutable goods is
   a.   Concave
   b.   Convex
   c.   Straight Line
   d.   L-shaped

vi)   In perfectly competitive markets
   a.   Firms can individually set the price
   b.   There are few sellers
   c.   Firms can enter and exit the market freely
   d.   All of the above

vii)   The current worth of a sum of money to be received at a future date is called:
   a.   real value
   b.   future value
   c.   present value
   d.   salvage value

viii)   Following is a relation of Marginal Revenue (MR), Price (P) and Price Elasticity of demand (E)
   a.   MR = P(1 + 1/E)
   b.   MR = P(1 - 1/E)
   c.   MR = E(1 - 1/P)
   d.   MR = E(1 + 1/P)

ix)   If w = 1000, r = 2000, and C= 10000, where w = wages, r=rate of interest and C = Cost, then the absolute value of the slope of the Isocost may be
   a.   0.5
   b.   2000
   c.   10
   d.   2.5

x)   A Market with large number of sellers and differentiated products is called
   a.   Monopoly
   b.   Monopolistic Competition
   c.   Perfect Competition
   d.   Monopsony

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Seventh Semester – 2019

Examination: B.S. 4 Years Program

PAPER: Managerial Economics

Course Code: COMM-404   Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Question 2. Answer the following in 5 to 10 sentences each. Unnecessarily long answers will lead to negative marking.

Marks: 20 (2 each)

i. Discuss what Managerial Economics is about.

ii. Why is the demand curve downward sloping?

iii. Describe the concept of cross price elasticity of demand using an example.

iv. Which is the planning curve of the firm? Explain it.

v. Find Q where MC is minimum if Cost $C = Q^3 - 8Q^2 + 57Q + 2$

vi. Differentiate between Risk Averter and Risk Seeker Managers.

vii. What is meant by increasing return to scale?

viii. What is an ISOCOST line? What happens to it is the wage rate decreases?

ix. Explain any two characteristics of Monopolistic Competition.

x. Explain what is Marginal Rate of Technical Substitution?

Answer the following questions. Avoid unnecessary details. **(Marks:10 Marks per question)**

Question No. 3   What is the purpose of Managerial Economics as a subject? What other subjects are related to Managerial Economics?

Question No. 4   What is Monopoly? Discuss the short run equilibrium of the firm under Monopoly.

Question No. 5   Describe various types of Elasticity of Demand.

OR

Consider the following Demand Function and related information and answer the questions.

$$Q = 200 - 0.15P + 0.05I$$

Where Q = Quantity Demanded, P = Price and I = Income

Let $P = 2500$ and $I = 50000$

a) Calculate the quantity demanded

b) Calculate and interpret the price elasticity of demand at the given values

c) Calculate and interpret the income elasticity of demand at the given values

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Examination: B.S. 4 Years Program

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PAPER: Corporate Finance (Finance Specialization)
Course Code: COMM-406   Part–I (Compulsory)

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

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

1. The portion of an asset's risk that can be eliminated through diversification is:
   a) Systematic risk
   b) Non-systematic risk
   c) Non diversifiable risk
   d) Both a & b

2. The use of fixed operating costs to magnify the effects of changes in sales on the firm's earnings before interest and taxes is:
   a) Financial leverage
   b) Operating leverage
   c) Financing leverage multiplier
   d) Cost of capital

3. When required rate of return of the investor is less than coupon rate, the bond sells:
   a) At par
   b) At premium
   c) At discount
   d) At face value

4. If cost of capital decreases the NPV of a project:
   a) Also increases
   b) Decreases
   c) Remains constant
   d) NPV cannot be determined

5. The dividend paid in the form of shares is known as:
   a) Cash dividend
   b) Stock dividend
   c) Property dividend
   d) Both a and b

6. A lease contract which is long term and not cancelable is:
   a) Operating lease
   b) Financial lease
   c) Leveraged lease
   d) None of the above

P.T.O.

UNIVERSITY OF THE PUNJAB

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

Roll No. ....

PAPER: Corporate Finance (Finance Specialization)
Course Code: COMM-406   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.   **(5x4=20)**

a) Mutually exclusive projects vs independent projects

b) Operating lease vs Financial lease

c) Stock dividend vs stock split

d) Residual theory of dividend

e) Capital Asset Pricing Model (CAPM)

LONG QUESTIONS [10×3=30 Marks]

Q.3 ABC Company is considering a new product line to supplement its existing range line. It is estimated that the initial investment of $100000 is made in the beginning for both projects A and B. The following table shows the estimated cash inflows of both the projects

Years	Project A-Inflows	Project B-Inflows
1	$30000	$25000
2	40000	40000
3	45000	40000
4	30000	20000
5	33000	42000

With cost of capital of 15% find out the following:
a) Provide payback period for both the projects.
b) Provide NPV for each and describe the feasibility of each project.
c) Provide internal rate of return and its acceptability.

Q.4 As a CEO of The Leather Ltd. a garment chain, you have just received a letter from a major stockholder. The stockholder asks about the company's dividend policy. In fact, the stockholder has asked you to estimate the amount of the dividend that you are likely to pay next year. You have not yet collected all the information about the expected dividend payment but you do know the following: The Company follows a residual dividend policy. The total capital budget for next year is likely to be one of three amounts, depending on the results of capital budgeting studies that are currently under way. The capital expenditure amounts are $2 million, $4 million, $7 million and $10 million. The forecasted level of potential retained earnings next year is $5 million. The target or optimal capital structure is a debt ratio of 30%. You have decided to respond by sending the stockholder the best information available to you by:
a) Describe a residual dividend policy
b) Compute the amount of the dividend (or the amount of new common stock needed) and the dividend payout ratio for each of the three capital expenditure amounts

Q.5 Your firm's cost analysis supervisor supplies you with the following revenue and cost data:

Sales	$1500000
Variable costs	900000
Fixed operating costs	200000
Interest expenses	40000
Preferred dividend	50000

Income tax rate is 40%.
a) Calculate the firm's degree of operating, financial and combined leverages?
b) Determine the total amount of sales if the firm wants to double its EBIT

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Consumer Behavior (Marketing Specialization)
Course Code: COMM-407   Part–I (Compulsory)

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

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

1. What type of segmentation assumes that people who live close to one another are likely to have similar tastes and preferences?
    A) Geo-demographic
    B) Benefits sought
    C) Geographic
    D) Demographic

2. _____ is one of the most pervasive of all types of consumer behavior because we all act as personal consumers.
    A) End-use consumption
    B) Organizational consumption
    C) Societal consumption
    D) Philanthropic consumption

3. Consumers' consistent preference or purchase of same brand of a specific product is called:
    A) Brand loyalty
    B) Brand entertainment
    C) Brand personification
    D) Branding

4. When a company can deliver customized messages to a small market segment on an ongoing basis, this process is called:
    A) Social responsibility
    B) Narrowcasting
    C) Positioning
    D) Broadcasting

5. One of the following is not the element of perception:
    A) Sensation
    B) Retention
    C) Differential threshold
    D) Subliminal perception

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UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: International Trade Theory
Course Code: ECON-401   Part–I (Compulsory)

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

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

1. The Stolper-Samuelson theorem predicts

   a) which factors are abundant
   c) which goods will be exported
   b) the level of productivity of exports
   d) income distribution effects of trade

2. Tariffs re-allocate income from

   a) Consumers to producers
   c) Govt. to producers
   b) Producers to consumers
   d) Consumers to foreigners

3. A nation engaging in international trade according to the Ricardian model will find its consumption bundle

   a) inside its production possibilities frontier
   b) on its production possibilities frontier
   c) outside its production possibilities frontier
   d) on its trade partner's production possibilities frontier

4. Using the HO model, assume that the United States is capital abundant and Mexico is labor abundant. If soybeans are capital intensive and avocados are labor intensive, it would be reasonable to expect the United States to

   a) specialize completely in soybean production
   b) specialize completely in avocado production
   c) increase soybean production, but still produce some avocados
   d) increase avocados production, but still produce some soybean

5. Intra-industry trade depends on what two characteristics of the industry and market

   a) Diseconomies of scale and homogenous products
   b) Non-tariff barriers and large scale foreign investment
   c) Govt. subsidies and industrial policy
   d) Economies of scale and differentiated products

P.T.O.

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Research Methodology
Course Code: ECON-402   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)

The data collected from the Internet is called:

I
- (a) Primary data
- (b) Ordinal data
- (c) Ratio data
- (d) Secondary data

A method, similar to group interviews, used to generate data is called:

II
- (a) Basic research
- (b) Focus Group
- (c) Diagnostic research
- (d) Fundamental research

A problem that motivates the researcher to carry out research study is called:

III
- (a) Research Hypotheses
- (b) Research Problem
- (c) Research Technique
- (d) Research Methods

Which one of the following is not required in conducting research?
The data collected from the Internet is called:

IV
- (a) Honesty
- (b) Misinterpretation of data
- (c) Integrity
- (d) Confidentiality

Research that takes help of historical sources to carry out study is called:

V
- (a) Field Research
- (b) Longitudinal Research
- (c) Historical Research
- (d) Quantitative Research

VI   The type of sampling in which the entire universe is divided into groups and some groups are randomly selected in the sample is called:
- a. Quota Sampling
- b. Group Sampling
- c. Cluster Sampling
- d. Systematic Sampling

P.T.O.

UNIVERSITY OF THE PUNJAB

Seventh Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Public Finance

Course Code: ECON-403   Part–I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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Signature of Supdt.:

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

1. The economic incidence of a unit tax is
   (a) Generally borne by the buyers.
   (b) Generally borne by sellers.
   (c) Generally borne by the government.
   (d) Independent of the statutory incidence for the tax.

2. A public good is
   (a) A good that the public must pay for.
   (b) Non rival in consumption.
   (c) More costly than a private good.
   (d) Paid for by the government.

3. Which of the following tax is best example of ability to pay principle of taxes:
   (a) Excise tax on cigarettes   (b) Highway toll tax
   (c) Proportional sales tax   (d) Personal income tax

4. Govt. budget is balanced when:
   (a) Govt. expenditure outstrips tax receipts
   (b) Govt. tax receipts outstrips expenditure
   (c) Government expenditure equals tax revenue
   (d) None of the above

5. Government finance is called:
   (a) National finance   (b) Public finance
   (c) Private finance   (d) (a) and (b) of above

6. How the government can meet its expenditure:
   (a) By taxing people.
   (b) By borrowing from banks and other governments
   (c) By printing new money
   (d) By all the three methods

7. Which tax better conforms to the principle of equality in taxation
   (a) Progressive tax   (b) Regressive tax
   (c) Proportional tax   (d) Fixed tax

8. Net taxes are:
   (a) Domestic taxes minus foreign taxes
   (b) Business taxes minus personal taxes
   (c) Total taxes minus govt. transfer payments
   (d) Total taxes minus govt. purchases

9. Which is not counted as public expenditure?
   (a) Subsidy given to local city bus service
   (b) Defense expenditure
   (c) Investment spending by public companies
   (d) Interest payment on national debt.

10. Progressive taxes:
    (a) Increase government revenue
    (b) Bring equality in distribution of incomes
    (c) Compel rich people to be honest
    (d) (a) & (b) of above

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 function of money?
a) hedge against inflation
b) medium of exchange
c) unit of account
d) store of value

2.   An example of fiat money is
a) paper euros.
b) gold.
c) silver coins.
d) cigarettes.

3.   If the banks in an economy operate with a reserve ratio of 20 per cent then the money multiplier is:

a)   4
b)   20
c)   25
d)   5

4.   Reserve requirements that may be imposed on an economy's banks by its central bank specify that banks' reserves must be a minimum percentage of their
a)   assets.
b)   deposits.
c)   loans.
d)   government bonds.

5.   The three main tools of monetary policy are
a)   fiat, commodity, and deposit money.
b)   open-market operations, reserve requirements, and the discount rate.
c)   the money supply, government purchases, and taxation.
d)   government expenditures, taxation, and reserve requirements.

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Inclusive Education
Course Code: EDU-401   Part–I (Compulsory)

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

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) Babbling starts at:
   a. 4-6 months
   b. 6-8 months
   c. 8-10 months
   d. 10-12 months

2) In inclusion the curriculum adaptation for special needs is:
   a. Often required
   b. Always Required
   c. Not required
   d. None of above

3) Utterance of first meaningful words
   a. 12 months
   b. 16 months
   c. 20 months
   d. 24 months

4) Pre-requisites of language development is:
   a. Attention
   b. Symbolic understanding
   c. Situational understanding
   d. All of above

5) The smallest unit of sound that has meaning in a language is known as:
   a. Phoneme
   b. Morpheme
   c. Grapheme
   d. None of above

6 Teachers who utilize questions who have only one answer are using which method?
   a. Inquiry
   b. Convergent
   c. Divergent
   d. Brainstorming

7) In learning disabilities, the name for mathematical disorder is:
   a. Dyspraxia
   b. Dyslexia
   c. Dyscalculia
   d. Dysphasia

8) To include a special child for half day in a regular setting is known as
   a. Mainstreaming
   b. Integration
   c. Full inclusion
   d. None of them

9) Startled reflex is present at the age of
   a. 0-1 months
   b. 2-3 months
   c. 3-4 months
   d. None of above

10. An analysis of note books and class test to determine the performance of child, in assessment, is known as :
   a. Portfolio
   b. Work sample analysis
   c. Task analysis
   d. None of above

UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Pedagogy Methods of Related to Islamic Studies   **MAX. TIME: 15 Min.**
Course Code: EDU-402-N   Part–I (Compulsory)   **MAX. MARKS: 10**

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.   2 x 5 = 10

مندرجہ ذیل کے بیانات میں سے ایک سے زائد جوابات دیے گئے ہیں موزوں ترین کا انتخاب کریں

۱) سرگرمیوں کا دائرہ زیادہ وسیع ہوتا ہے

1. Activates are broad spectrum

مسئلی طریق   مصوبی طریقہ   وحدتی طریقہ

A) Problem solving method   B) Project method   c) Unitary method

مسئلی طریق   مصوبی طریقہ   وحدتی طریقہ

۲) جو مضامین میں باہم سے زیادہ ربط پیدا کرتا ہے

2. Which method creates more inter linkage of the subjects.

مسئلی طریق   مصوبی طریقہ   وحدتی طریقہ

A) problem solving method   B) project method: C) unitary method

۳) تعلیمی سیاحت میں طلبہ مشاہدہ کرتے ہیں

3. Students observe during the field trip

تاریخی مقامات   دینی درسگاہ   مناظر فطرت   سب اشیا

A) Historical places   B) Religious places   C)natural Scenes   D)All these

۴) روح کی پاکیزگی کا سب سے مؤثر ذریعہ

4. The most effective way for cleanliness of soul is

A) Book reading   B) Religious gathering   C)Games   D)Debates

مطالعہ کتب   مجلس ذکر   کھیل کود   مذاکرہ

۵) مطالعہ کا شوق دلاتے ہیں

5. _____persuades to study

A) Educational events   B) Visits to graves   C)Islamite Museum)   All these

معلوماتی پروگرام   زیارت قبور   اسلامیات میوزیم   یہ سب

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Comparative Education
Course Code: EDU-403   Part–I (Compulsory)

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

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

1. The .... is a basic measure of a country's overall economic output. It is the market value of all final goods and services made within the borders of a country in a year.

    a) GDP or GDI   b) GIP
    b) GOP   d) none of the above

2. .... rate is the difference of immigrants and emigrants of an area in a period of time, divided (usually) per 1,000 inhabitants (considered on midterm population). A positive value represents more people entering the country than leaving it, while a negative value mean more people leaving than entering it.
    a) Immigration   b) Emigration
    c) net migration   d) none of the above

3. ....is the change in a population over time, and can be quantified as the change in the number of individuals of any species in a population using "per unit time" for measurement.
    a) Population   b) Population growth
    c) Net population   d) None of the above

4. ....factor is an important factor which in influence the allocation of GDP in education
    a) Economic   b) Racial
    c) Moral   d) none of the above

5. ....rate is a measure of the number of deaths (in general, or due to a specific cause) in a population, scaled to the size of that population, per unit of time. This rate is typically expressed in units of deaths per 1000 individuals per year.
    a) Mortality   b) Fertility
    c) Population   d) none of the above

6. .... rate of a population is the average number of children that would be born to a woman over her lifetime
    a) Mortality   b) Fertility
    c) Population   d) none of the above

7. ....has been described as the ability to read for knowledge and write coherently and think critically about the written word
    a) Literacy   b) illiteracy
    c) Population   d) none of the above

8. Acording to Theory .... people are average human beings prefers to be directed and wish to avoid responsibilty
    a) XX   b) X   c) Y   d) Z

9. ....education provide a wide vision of comparison, critical analysis with the world and opportunity to improve the weak areas in educational system and structure.
    a) Comparative   b) Religious   c) Moral   d) non

10. ....was founded to foster "cross-cultural understanding, scholarship, academic achievement, and societal development through the international study of educational ideas, systems, and practices."
    a) The Comparative and International Education Society (CIES)
    b) The National Education Foundation (NEF)
    c) The International Foundation (IF)
    d) All of these

UNIVERSITY OF THE PUNJAB

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

PAPER: Methods of Teaching of Social Studies-III
Course Code: EDU-403-N   Part–I (Compulsory)

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

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. • Socratic method is known as
   a) Inquiry method
   c) lecture method
   b) discussion method
   d) question answer method

2. • Lecture method is generally describes as
   a) Child centered
   c) teacher centered
   b) activity centered
   d) non of the above

3. • Students are passive in
   a) Project method
   c) inquiry method
   b) discovery method
   d) lecture method

4. • Inquiry method includes
   a) Questioning
   c) showing
   b) observation
   d) experimentation

5. • To promote science and technology is --- of education
   a) Aim
   c) Objective
   b) Goals
   (d) All of the above

6. • A teacher should have knowledge of
   a) subject matter
   c) students' needs
   b) teaching methods
   d) all of the above

7. • The goal of teaching is
   a) to give information
   (c) To impart knowledge
   b) To involve pupils in activities
   d) Desirable change in behavior

8. • Which is not true about lesson plan?
   a) It develops confidence
   c) It is developed by students
   b) It helps in orderly content delivery
   d) It saves from haphazard teaching

9. • Educational objectives have been divided into
   a) Two domains
   c) Four domains
   b) Three domains
   d) Five domains

10. • Teacher performs practically and explains in
    a) Lecture method
    c) demonstration method
    b) discovery method
    d) inquiry method

UNIVERSITY OF THE PUNJAB

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

PAPER: Information Communication Technology (ICT)
Course Code: EDU-404   Part–I (Compulsory)

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

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.   An advantage of think-pair-share over small-group active learning is
    a) it takes less class time
    b) it provides the learning benefits of both individual reflection and interactivity
    c) it leads to greater acquisition of critical thinking skill
    d) all of the above

ii.   Technology _____.
    a. should be utilized by every teacher and every subject area
    b. is best utilized by students for assignments outside of the classroom
    c. can be overused by both teachers and students
    d. will soon replace teachers in the classroom

iii.   The open education content that is freely available for university students is referred as
    a. Open Content
    b. OSS
    c. OCW
    d. OSC

iv.   The most important factor on the social dimension of classroom life is/are _____.
    a. personality and individual needs
    b. motivation
    c. personality and norms
    d. the learning community

v.   Teachers can alleviate some of the negative influences of peer pressure and create an environment that meets students' needs for affiliation by _____.
    a. initiating competitive reward and goal structures
    b. avoiding group activities in an attempt to avoid negative influences
    c. focusing on each student individually by determining his/her strengths and weaknesses
    d. making sure that students know each others' names and have personal information about one another

vi.   What is meant by WWW?
    a. World West Web
    b. World Web Wide
    c. West Wide Web
    d. Web World Wide

vii.   Technology can help in establishing effective learning environment by bringing _____ problems in the classroom.
    a. outer world
    b. management
    c. real world
    d. learner

viii.   Electronic portfolios sites is developed by _____ at the University of the Alaska.
    a. Dr. Hoarch Burgg
    b. Paul Hersey
    c. Dr. Robert House
    d. Dr. Hellen Barret

ix.   Radio is NOT _____ medium
    a. flexible
    b. modern
    c. technical
    d. simpler

x.   Edgar Schien research on _____ learning suggested that despite much press to the contrary very few institutions are truly learning organizations.
    a. informational
    b. transformational
    c. computer
    d. internal

UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Research Methods in Educations
Course Code: EDU-405-N   Part–I (Compulsory)

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

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Signature of Supdt.:

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

1. **What is the aim of educational research?**
   (a) Identifying major problems that need to be solved
   (b) Searching for the new facts and principles underlying the process of education
   (c) Identifying the aims of education
   (d) Identifying the values that need to be inculcated in the pupils.

2. **Why is research in education important for teachers?**
   (a) It adds to their academic qualifications.
   (b) It makes them wiser
   (c) It makes them better teachers
   (d) It enables them to make best possible judgments about what should be taught & how.

3. **What does view of related research and literature not do?**
   (a) Provide the researcher with sufficient useful knowledge
   (b) Help the researcher in identifying needed problems of research
   (c) Make the researcher competent and perfect in doing research
   (d) Make the researcher aware of the pitfalls that plagued his predecessors.

4. **Which of the following is desirable in a questionnaire?**

   (a) Emotionally toned questions

   (b) Too broad questions

   (c) Two ideas in one question

   (d) Questions which will elicit valid and reliable answers.

5. **What is the meaning of Data?**

   (a) Facts

   (b) Truths

   (c) Observation

   (d) Marks obtained

6. **What is the meaning of population in Educational Research?**

   (a) Male, Female, Children

   (b) Observation of all the units

   (c) Elites

   (d) All of these.

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UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Research Methodology
Course Code: ENG-405 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)

i. Broad subject matter being addressed in a study is called _____.
(a) Research problem   (b) Research topic
(c) Purpose   (d) Research question

ii. _____ mixes copied material from multiple from multiple sources.
(a) Mash-up   (b) Hybrid
(c) Aggregator   (d) Re-tweet

iii. Quantitative data is in _____ form, such as statistics etc.
(a) Percentage   (b) Quadratic
(c) Numerical   (d) Quotational

iv. _____ interviews combines both structured and unstructured approaches.
(a) Non-structured   (b) Co-Relational
(c) Relational   (d) Semi-structured

v. List of issues to guide observation is called _____.
(a) Index   (b) Reference list
(c) Protocol   (d) Content list

vi. The study loosly structured and designed to expand understanding of a topic and provides insights is _____.
(a) Formal   (b) Causal
(c) Exploratory   (d) Experimental

vii. All of the following are possible goals of an exploratory study except _____.
(a) Expand understading of a topic   (b) Test Hypothesis
(c) Provide insight   (d) Develop Hypothesis

viii. Research design strategy encompasis all of the components below except _____.
(a) Data collection design   (b) Sampling design
(c) Instrument development (d) Data analysis

ix. The goal of a formal study is to _____.
(a) Discover future research tasks   (b) Expand understanding of a topic
(c) Test Hypothesis   (d) Develop Hypothesis

x. The primary concern with using qualitative technique is that, qualitative data are too _____.
(a) Expensive   (b) Time consuming
(c) Subjective   (d) Objective

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Enterprise Application Development
Course Code: IT-402   Part–I (Compulsory)

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

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-Servlet are used to program which component in a web application.
   a) Tomcat   b)Client   c) Server   d)All of the above

2- Which of the following is the format for EJB deployment descriptor files?
   a) XML   b) html
   c) Java   d) Dhtml

3- Which of the following is the format for EJB deployment descriptor files?
   a) Application server   b) Web server c)DB server d)Thin client

4- What type of protocol is HTTP:
   a) Stateful   b) State less
   c) Transfer protocol   d)Information protocol

5- What does MIME stand for:
has been applied?
   a) Multipurpose Internet Messaging Extension b)Multipurpose Internet Mail Extension.
   c) Multipurpose Internet Media Extension d) Both a and c

6- Which JSP tag is used to transfer processing to another JSP page
   a) <jsp:include>   b) <jsp:forward>
   c<jsp:redirect>   d) <jsp:include:forward>

7- Which of the following is true for JNDI?
   a) DB service   b) Naming and directory service c)web service d)Network service.

8- Which method of the servlet is/are called several times in its life?
   a) Dopost ()   b) init ()   c)destroy()   d)super()

9- Which is not a valid scope for Java bean in JSP
a) Page b) session c) application d) global

10) **a)** Which of the following allows substitution of code to occur at the translation time
   in a JSP page?
   b) <jsp:include>   b) <@ page >   c) <@ include>   d) All a,b and c

UNIVERSITY OF THE PUNJAB

Seventh Semester – 2019

Examination: B.S. 4 Years Program

Roll No. ....

PAPER: Project Management

Course Code: IT-404   Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Explain the short questions.   **(10 x 2 = 20)**

1. Define Triple Constrains?
2. Define Project Management?
3. Differentiate b/w Project Management and Project portfolio management?
4. What do you know about WBS?
5. Name techniques of cost estimation?
6. List reasons why Organizations out-source?
7. List the tools and techniques for performing risk monitoring and control?
8. Enlist the processes involved in Project Human Resource Management?
9. Explain RACI charts?
10. What are bench marks?

Q.3. Explain the detailed questions.   **(3 x 10 = 30)**

i. Explain project cost management processes. Also explain basic principal of the cost management?

ii.

Activity	Initial Node	Final Node	Estimated Duration
A	1	2	2
B	2	3	2
C	2	4	3
D	2	5	4
E	3	6	2
F	4	6	3
G	5	7	6
H	6	8	2
I	6	7	5
J	7	8	1
K	8	9	2

Calculate Early Start, Early Finish, Late Start, Late Finish, Free slack, and total slack for above data? Show critical path and enlist result in a tabular format?

iii.

What is the difference between brainstorming and the Delphi technique for risk identification? What are some of the advantages and disadvantage of each approach?

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PAPER: Set Theory
Course Code: MATH-401   Part–I (Compulsory)

MAX. TIME: 30 Min.
MAX. MARKS: 10

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   MCQs (1 Mark each)

(i)   An ordered set S is said to be well ordered if every subset of S contains ------------ element.

   (a) maximal   (b) minimal   (c) first   (d) last

(ii)   Let $A = \{a, b\}$, $B = \{x, y, z\}$ then cardinality of A^B is ----------

   (a) 6   (b) 8   (c) 9   (d) 5

(iii)   Let $I_k = \left(\dfrac{-1}{k}, \dfrac{1}{k} \right)$, then $\overset{\infty}{\underset{k=1}{\cap}} I_k = $ ----------

   (a) 0   (b) ϕ (c) $\{0\}$ (d) $(-\infty, \infty)$

(iv)   The bijective mapping $f : [0,1] \to [a,b]$ is defined by ----------

   (a) $f(x) = ax + b$ (b) $f(x) = a + bx$

   (c) $f(x) = (b-a)x + a$ (d) $f(x) = (a+b)x + b$

(v)   A set S is said to be ------------ if it has the same cardinality as a proper subset of itself.

   (a) finite   (b) infinite   (c) countable   (d) uncountable

(vi)   Let S be a partially ordered set. An element $a \in S$ is called minimal element of S -------- if

   (a) $x \le a \ \forall x \in S$ (b) $x \le a$ implies $x = a$

   (c) $x \ge a$ implies $x = a$ (d) $x \ge a \ \forall x \in S$

(vii)   Every element in a Well-ordered set has a unique immediate successor except the ----------
        element

   (a) first   (b) last   (c) minimal   (d) maximal

(viii) Let $Z = \{..., -3, -2, -1, 0, 1, 2, 3, ...\}$ then the initial segment $s(0) = $ ----------

   (a) $\{1, 2, 3, ..., 10\}$ (b) $\{..., -3, -2, -1\}$ (c) $\{..., -3, -2, -1, 0\}$ (d) None of these

(ix)   Let a and b are elements of partially ordered set S. We say a and b are ----------

        if $a < b$ or $b > a$ (i.e. if one of them precedes other).

   (a) Non comparable   (b) Comparable   (c) minimal   (d) Maximal

(x)   Let $N = \{1, 2, 3, ...\}$ and $M(a) = \{x : x \ge a\}$ then $M(9) = $ ----------

   (a) $\{1, 2, 3, ..., 9\}$ (b) $\{9, 10, 11, ...\}$ (c) $\{10, 11, 12, ...\}$ (d) None of these

UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. ....

PAPER: Numerical Analysis-I
Course Code: MATH-403   Part – II

MAX. TIME: 2 Hrs. 30 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2: Answer the following short questions. $4 \times 5 = 20$

(i).   Define Truncation Error, Relative Error and Order of Convergence

(ii).   Suppose that $\tilde{x}$ is an approximate solution of the system $A\,\underline{x} = \underline{b}$, A is a non-singular matrix and $\underline{r}$ is the residual vector for $\tilde{x}$ then show that for any natural norm

$$\left\| \underline{x} - \tilde{x} \right\| \leq \left\| \underline{r} \right\| \left\| A^{-1} \right\| \quad \text{and}$$

$$\frac{\left\| \underline{x} - \tilde{x} \right\|}{\left\| \underline{x} \right\|} \leq \left\| A \right\| \left\| A^{-1} \right\| \frac{\left\| \underline{r} \right\|}{\left\| \underline{b} \right\|} \quad \text{provided} \quad \underline{x} \neq 0, \underline{b} \neq 0.$$

(iii).   For matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$, compute $\left\| A \right\|_1$ and $\left\| A \right\|_2$.

(iv).   Prove that

- $1 + \mu^2 \delta^2 = \left(1 + \dfrac{\delta^2}{2} \right)^2$

- $\nabla + \Delta = \Delta/\nabla - \nabla/\Delta$

Long Questions $6 \times 5 = 30$

Q3: Find an iterative formula to find $(N)^{1/3}$, where N is a positive number and hence, find $(7)^{1/3}$ correct to four decimal places.

Q4: Find a real root of equation $x^3 - 3x - 5 = 0$ by secant method correct to three decimal places.

Q5: Derive the Gregory-Newton Backward Difference Interpolation formula.

Q6: Solve the following system of equations using Gauss Seidel method correct to two decimal places

$$5x + 2y + z = 12$$

$$x + 4y + 2z = 15$$

$$x + 2y + 5z = 20$$

Q7: The following data gives the melting point of an alloy of lead and zinc, where t^0c is the temperature and P is the percentage of lead in the alloy. Using Gauss's forward interpolation formula, find the melting point of the alloy containing 65% of lead

P	40	50	60	70	80
t^0c	156	184	205	228	276

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Seventh Semester – 2019

Examination: B.S. 4 Years Program

Roll No. ....

MAX. TIME: 2 Hrs. 30 Min.
MAX. MARKS: 50

PAPER: Mathematical Statistics-I
Course Code: MATH-404   Part – II

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q. 2	SHORT QUESTIONS	
(i)	Five cards are drawn from an ordinary deck of 52 playing cards. What is the probability the chosen 5 cards contain (i) Just one ace (ii) at least one ace.	(4)
(ii)	A class contains 10 boys and 20 girls of which 4 boys and 6 girls use contact lenses. If a person is selected at random from the class. What is the probability that the person selected is 'a girl' or 'a contact lens user'?	(4)
(iii)	For what value of c, the function $$f(x) = c\binom{5}{x}, \quad x = 0,1,2,3,4,5$$ can be served as probability distribution function.	(4)
(iv)	Write down the Moment generating function of Poisson distribution and derive its mean and variance.	(4)
(v)	If 20% of the bolts produced by a machine are defective, determine the probability that out of 6 bolts chosen at random **(a)** less than 2 are defective **(b)** at least 4 bolts will be defective	(4)

	LONG QUESTIONS	
Q.3	Prove that the recurrence formula for the Poisson distribution is given by $\mu_{r+1} = m(r\mu_{r-1} + \frac{d\mu_r}{dm})$, where m is the parameter of the Poisson distribution.	(10)
Q.4	A continuous r.v. has PDF $$f(x) = \begin{cases} k(2-x)(x-5), & 2 \le x \le 5 \\ 0, & elsewhere \end{cases}$$ Find k, mean, variance, median and mode of the distribution.	(10)
Q.5	An oil company conducts a geological study that indicates that an exploratory oil well should have a 20% chance of striking oil. What is the probability that the third strike comes on the seventh well drilled? Also find the probability of three strikes when there are seven possible well drilled.	(10)

UNIVERSITY OF THE PUNJAB

Seventh Semester – 2019

Examination: B.S. 4 Years Program

PAPER: Mathematical Statistics-I

Course Code: MATH-404   Part–I (Compulsory)

MAX. TIME: 30 Min.

MAX. MARKS: 10

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 a Poisson distribution, mean and variance are related by **(a)** $\mu = \sigma^2$ **(b)** $\mu < \sigma^2$ **(c)** $\mu > \sigma^2$ **(d)** none of these
(ii)	The MGF of binomial distribution about the origin is **(a)** $(p + qe^t)^n$ **(b)** $(p + qe^t)^{-x}$ **(c)** $(p + qe^t)^{-n}$ **(d)** $(p + qe^t)^x$
(iii)	If $E(X) = 15$ and $Y = 3X - 9$, then $E(Y)$ is **(a)** 15 **(b)** 30 **(c)** 24 **(d)** 36
(iv)	The conditional probability of an event A given event B is given by **(a)** $P(A \cap B) = P(A)P(B\backslash A)$ **(b)** $P(A\backslash B) = P(A)$ **(c)** $P(A\backslash B) = \frac{P(A \cap B)}{P(B)}$ **(d)** $P(A \cup B) = P(A) + P(B)$
(v)	The probability of an event cannot be equal to **(a)** 0.82 **(b)** 0 **(c)** 1.35 **(d)** 0.36
(vi)	A discrete probability distribution may be represented by **(a)** a table **(b)** a histogram **(c)** a mathematical function **(d)** all of these
(vii)	If $M(t) = e^{-8t + 24t^2}$ is the m.g.f. of a normal distribution, the mean and variance of this distribution are: **(a)** 8 and 48 **(b)** 16 and 48 **(c)** -8 and 48 **(d)** -8 and 48
(viii)	The probability of continuous random variable X at $x = a$ is **(a)** between 0 and 1 **(b)** 1 **(c)** 0 **(d)** less than 1
(ix)	The normal distribution will be less spread out when **(a)** the mean is small **(b)** the median is small **(c)** the mode is small **(d)** the standard deviation is small
(x)	All odd order moments of normal distribution are **(a)** positive **(b)** equal **(c)** 0 **(d)** negative

UNIVERSITY OF THE PUNJAB

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

PAPER: Number Theory-I
Course Code: MATH-408   Part – II

MAX. TIME: 2 Hrs. 30 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q. 2	Short Questions (5x4 = 20 Marks)
(i)	Solve the linear congruence $$36x \equiv 7 (\mathrm{mod}\,157) \qquad (4)$$
(ii)	Prove that there are infinitely many primes. (4)
(iii)	Let $(a, 51) = 1$. Then prove that $a^{32} \equiv 1\ (\mathrm{mod}\,51)$. (4)
(iv)	By means of theory of exponent, Prove that $^{n}p_r$ and $^{n}c_r$ both are integers. (4)
(v)	Using indices, Solve the following congruence $$11x^3 \equiv 2 (\mathrm{mod}\,23) \qquad (4)$$

Long Questions (6x5 = 30 Marks)

Q.3	(i) Let $n > 1$ be a composite integer then show that there exists a prime p such that $p \mid n$ and $p \le \sqrt{n}$ (ii) If k integers $a_1, a_2, ..., a_k$ form a Complete Residue System modulo m then show that $k = m$. (2+3)
Q.4	State and prove the Chines Remainder theorem. Apply it to solve the following system of linear congruences $$x \equiv 2\ (\mathrm{mod}\,5)$$ $$x \equiv 3 (\mathrm{mod}\,7) \qquad (3+2)$$ $$x \equiv 5 (\mathrm{mod}\,11)$$
Q.5	State and prove Wilson Theorem. Apply it to find remainder of 35! when it is divided by 37. (3+2)
Q.6	Define multiplicative arithmetic functions. Let n be an integer > 1. Show that $\sigma(n)$ is odd if and only if n is a perfect square or twice a perfect square. (5)
Q.7	Let a be primitive root modulo n and b, c be integers, then show that $$Ind\ bc \equiv Ind\ b + Ind\ c\ (\mathrm{mod}\,\varphi(m)).\qquad (5)$$
Q.8	(i) Prove that every prime number has a primitive root. (ii) Find all primitive roots of 50. (3+2)

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Seventh Semester – 2019

Examination: B.S. 4 Years Program

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PAPER: Number Theory-I

Course Code: MATH-408   Part–I (Compulsory)

MAX. TIME: 30 Min.

MAX. MARKS: 10

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	MCQs (1x10 = 10 Marks)
(i)	641 divides a) F_5 b) F_3 c) F_2 d) F_0
(ii)	The least common multiple of 60 and N is 1260. Which of the following could be the prime factorization of N? a) $2.3^2.5.7$ b) $2^3.5.7$ c) $3^2.5.7$ d) $2.5.7^2$
(iii)	What is the remainder when 2^{15} is divided by 15? a) 10 b) 13 c) 8 d) none
(iv)	The sum of positive divisors of 28 is a) 28 b) 56 c) 60 d) None of (a),(b),(c)
(v)	The number of primitive root mod 55 are (a) 2 (b) -1 (c) 1 (d) 0
(vi)	If $15x+7y = 210$, then a) x=2, y=5 b) x=7, y=15 c) x=2, y=15 d) x=7, y=16
(vii)	If 2 has exponent 3 mod 7, then 2^6 has exponent (a) 1 (b) 3 (c) 5 (d) 7
(viii)	If $\sigma(n) = 2n$, then n is called (a) Composite (b) Perfect (c) Prime (d) Mersenn
(ix)	If p is a prime number and d is a factor of p-1 then the number of solutions of the congruence $x^{d-1} \equiv 0 \pmod{p}$ is a) p-1 b) p c) d-1 d) d
(x)	$\tau(25) =$ (a) 2 (b) 3 (c) 5 (d) 25

Q.3	Long Questions (10 × 3 = 20 Marks)
(i)	Write the dual of the following primal LP model and determine the values of dual variables and primal variables.

Maximize $z = 4x_1 + 2x_2$

subject to

$$x_1 - 2x_2 \geq 2$$

$$x_1 + 2x_2 = 8$$

$$x_1 - x_2 \leq 10$$

$x_1 \geq 0$ and x_2 unrestricted in sign.

(ii)	A firm has two bottling plants, one located at Coimbatore and other at Chennai. Each plant produces three drinks, Coca-cola, Fanta and Thumps-up, named A, B, and C, respectively. The number of bottles produced per day are as follows:

	Plant at	
	Combatore(E)	Chennai(F)
Cocacola(A)	15,000	15,000
Fanta(B)	30,000	10,000
Thumps-up(C)	20,000	50,000

A market survey indicates that during the month of April, there will be a demand of 200,000 bottles of Coca-cola, 400,000 bottles of Fanta and 440,00 bottles of Thumps-up. The operating cost per day for plants at Combatore and Chennai is 600 and 400 monetary units respectively. For how many days each plant be run in April so as to minimize the production cost while still meeting the market demand?

(iii)	A military equipment is to be transported from origins 1, 2, 3 to destinations 1, 2, 3, 4. The supply at the origins, the demand at the destinations and time of shipment is given below. Work out a transportation plan so that the time required for the shipment is the minimum.

Destination   Supply

	Destination				Supply
Origin	10	22	0	22	8
	15	20	12	8	13
	20	12	10	15	11
Demand	5	11	8	8	

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Operations Research-I
Course Code: MATH-412   Part–I (Compulsory)

MAX. TIME: 30 Min.
MAX. MARKS: 10

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

Q1. MCQs (Marks=10)	
(i)	Surplus variable is associated to _____ type constraint a) $\leq$ b) $\geq$ c) $=$ d) none
(ii)	For LP model with n variables and m constraints, the maximum number of corner points is a) n-m b) nm c) C_m^n d) none
(iii)	In LP problem, the leaving variable corresponds to the basic variable with _____ ratio. (a) minimum non-negative (b) minimum non-positive (c) maximum non-negative (d) maximum non-positive
(iv)	The non-negative variable in dual corresponds to ____ type constraint (a) $\leq$ (b) $\geq$ (c) $=$ (d) zero
(v)	The rule associated with selection of entering variable is referred as _____ (a) optimality condition (b) Gauss Jordan row operation (c) feasibility condition (d) None
(vi)	For minimization LP problem, the coefficient of artificial variable in M-technique is _____ (a) +1 (b) -1 (c) +M (d) -M
(vii)	The most suitable algorithm for solving assignment model is (a) North-West Corner Method (b) Simplex Method (c) Hungarian Method (d) Revised Simplex Method
(viii)	The number of basic variables in an $m \times n$ transportation table is a) $m+n$ b) $m-n$ c) $m+n-1$ d) $m+n+1$
(ix)	The method used to determine the shortest route problem between two nodes (a) Dijkstra's algorithm (b) Floyd's algorithm (c) both (a) & (b) (d) None
(x)	LP model with _____ constraints have no solution a) type $=$ b) inconsistent c) type $\geq$ d) type $\leq$

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

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PAPER: Theory of Approximation & Splines -I
Course Code: MATH-413   Part–I (Compulsory)

MAX. TIME: 30 Min.
MAX. MARKS: 10

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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 composition of two reflections is a
   a) Reflection   b) Rotation   c) Translation
   d) Shear

2. .... is the method of finding value outside the given data points
   a) Interpolation   b) Approximation   c) Extrapolation
   d) curve fitting

3. Every isometry is ------------------------
   a) One-one   b) Onto   c) Into   d) none of these

4. The Lagrange polynomial for the points (0,0) and (1,1) is
   a) $2x$ b) x c) $x/2$ d) All of these

5. The operator used in the Gauss's Backward interpolation formula is

   a) E   b) δ c) ∇ d) All of these

6. The matrix of rotation is

   a) $\begin{bmatrix} \cos 2t & \sin 2t \\ \sin 2t & \cos 2t \end{bmatrix}$ b) $\begin{bmatrix} \cos 2t & \sin 2t \\ \sin 2t & -\cos 2t \end{bmatrix}$ c) $\begin{bmatrix} -\cos 2t & \sin 2t \\ \sin 2t & \cos 2t \end{bmatrix}$

   d) $\begin{bmatrix} \cos t & -\sin t \\ \sin t & \cos t \end{bmatrix}$

7 $\nabla y_3 =$ ------------------
   a) $y_2 - y_3$ b) $y_2 + y_3$ c) $y_3 - y_2$ d) None of these

8    $\mu = $ – – – – – – – – – – – – – –

   a) E+1   b) $\Delta + \nabla$ c) $\dfrac{E^{1/2} + E^{-1/2}}{2}$ d) $\dfrac{E^{1/2} - E^{-1/2}}{2}$

   d) None of these

9. The composition of reflection and rotation is
   a) Rotation   b) Reflection   c) Translation   d) None of these

10. If y_x is a polynomial of nth degree, then its nth differences are...........
   a) one   b) zero   c) constant   d) n

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Examination: B.S. 4 Years Program

Roll No. ....

PAPER: Theory of Approximation & Splines -I
Course Code: MATH-413   Part – II

MAX. TIME: 2 Hrs. 30 Min.
MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2. Solve the following short questions   (4x5=20)

1. An affine transformation preserves ratios of lengths along parallel straight lines.
2. Drive the normal equations for finding the least-squares polynomial
   $y = A + BX + CX^2$.
3. Find the cubic polynomial which takes the following set of values (0, 1), (1, 2), (2, 1), (3, 10).
4. Show that translation is distance preserving transformation.

Q3. Solve the following **Long Questions.**

1. The area A of a circle of diameter d is given for the following values

d	80	85	90	95	100	105
A	2491	2505	2518	2531	2544	2556

Calculate the area of a circle of diameter 102.

(08)

2. Find an affine transformation which maps the points (0,0), (1,0), (0,1) onto the points (5,0), (0,5) and (0,6), respectively.   (07)

3. Find the power fits $y = Ax^2$ and $y = Bx^3$ for the following data and use $E_2(f)$ to determine which curve fits best.   (08)

x_k	2.0	2.3	2.6	2.9	3.2
y_k	5.1	7.5	10.6	14.4	19.0

4. Find the equation after stretching the circle $x^2 + y^2 = 1$, parallel to x-axis by factor 2 and parallel to y-axix by factor 3.   (07)

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

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PAPER: Web Survey & SPSS
Course Code: SOC-402   Part–I (Compulsory)

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

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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 is the advantage of using SPSS over calculating statistics by hand?

    a. It equips you with a useful transferable skill.

    b. It reduces the chance of making errors in your calculations.

    c. Many researchers use SPSS as it is a recognized software package.

    d. All of the above.

2. In SPSS, what is the "Data Viewer"?

    a. A table summarizing the frequencies of data for one variable.

    b. A spreadsheet into which data can be entered.

    c. A dialog box that allows you to choose a statistical test.

    d. A screen in which variables can be defined and labeled.

3. How is a variable name different from a variable label?

    a. It is shorter and less detailed.

    b. It is longer and more detailed.

    c. It is abstract and unspecific.

    d. It refers to codes rather than variables.

4. In which sub-dialog box can the Chi Square test be found?

    a. Frequencies: Percentages

    b. Crosstabs: Statistics

    c. Bivariate: Pearson

    d. Gender: Female

5. Functional components of a database system can be broadly divided into

    a. 2 components

    b. 3 components

    c. 4 components

    d. 5 components   **P.T.O.**

UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Electronic Media and Virtual Society
Course Code: SOC-403   Part–I (Compulsory)

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

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Signature of Supdt.:

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

1. The correlation function of mass communication is important because
   a. The media can help maintain social stability.
   b. The media can keep audiences informed about issues, events, and other developments in society.
   c. The media help people learn society's rule and how to fit into society.
   d. All of the above.
   e. None of the above.

2. Intra-personal communication is:
   a. Communication with personal friend.
   b. With people.
   c. With self.
   d. With family
   e. None of the above.

3. Who was the first editor of daily Nawai e waqt?
   a. Majeed nizami
   b. Mujeeb nizami
   c. Hameed nizami
   d. None of the above
   e. All of the above

4. The communication based on purchased time of space is called:
   a. Publicity
   b. Advertising
   c. Propaganda
   d. All of the above
   e. None

5. Press and Publication Ordinance was introduced in:
   a. 1963
   b. 1965
   c. 1995
   d. 1970
   e. 1580

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UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Statistical Inference-I (Theory)
Course Code: STAT-401   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 β is the probability of -----------------------
    A. Type-I Error   B. Rejection Region
    C. Acceptance Region   D. Type-II Error

2. A quantity obtained by applying certain rule or formula is known as
    A. Estimation   B. Test Statistics
    C. Estimate   D. Estimator

3. What is the probability of a type II error when $\alpha=0.05$?
    A. 0.025   B. 0.05
    C. 0.95   D. Cannot be determined without more information

4. The estimator is called efficient if it has minimum ----------------------.
    A. Mean   B. Variance
    C. Number of Values   D. None of the above

5. Suppose $\bar{X}$ represents the sample mean, the expected value of $\bar{X}$ would be equal to ---------------.
    A. σ B. μ
    C. $\bar{\bar{X}}$ D. None of above

6. The level of significance is represented by --------------.
    A. α B. β
    C. $1-\alpha$ D. $1-\beta$

7. The linear unbiased estimator which has also minimum variance is called ---------------.
    A. BLUE   B. Better estimator
    C. Biased estimator   D. None of the above

8. If the minimum variance estimator exists, it would essentially be ----------------------.
    A. Zero   B. Greater than one
    C. Negative   D. Unique

9. Parameter is a -------------- quantity.
    A. Constant   B. Variable
    C. Both (A) and (B)   D. None of the above

10. Criteria to check a point estimator to be good are ------------------.
    A Consistency   B. Unbiasedness
    C. Efficiency   D. All above

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

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Research Methodology
Course Code: STAT-406   Part–I (Compulsory)

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

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.   Sampling is advantageous as it _____
   a) Saves time
   b) Saves money
   c) Both (a)and (b)
   d) Increase accuracy

ii.   Random sampling is helpful as it is _____.
   a) Reasonably accurate
   b) Free from personal biases
   c) An economical method of data collection
   d) All the above

iii.   Survey research studies _____
   a) Events
   b) Population
   c) Processes
   d) Circumstances

iv.   Which of the following is NOT the characteristic of a research?
   a) Research is systematic
   b) Research is not passive
   c) Research is not a process
   d) Research is problem oriented

v.   The process of selecting the fractional part of a population is
   a) universe
   b) sampling
   c) sample
   d) fraction

vi.   When the sample is not related to the unit of the target population and involves personal judgment, it is called
   a) disproportionate sampling)
   b) proportionate sampling
   c) probability sampling
   d) non-probability sampling

vii.   Bibliography given in a research report:
   a) has no relevance to research
   b) shows vast knowledge of the researcher
   c) helps those interested in further research
   d) all the above

viii.   Which of the following is included in the main body of the report?
   a) Bibliography
   b) List of tables
   c) Introduction
   d) List of figures

ix.   Which one of the following principles is not applicable to sampling?
   a) Sample units must be clearly defined
   b) Sample units must be dependent on each other
   c) Same units of sample should be used throughout the study
   d) Sample units must be chosen in a systematic and objective manner

x.   The research is always -
   a) exploring new knowledge
   b) verifying the old knowledge
   c) filing the gap
   d) all of the above

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

Roll No. ....

PAPER: Time Series Analysis-I
Course Code: STAT-411 Part – II

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

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Answer these short questions.   (4x5=20)

a) Differentiate between weak and strict stationarity.

b) Consider an AR(p) process, $X_t = \varphi_1 X_{t-1} + \varphi_2 X_{t-2} + \cdots + \varphi_k X_{t-k} + Z_t$,

Show that, $$\sigma_X^2 = \frac{\sigma_Z^2}{1 - \varphi_1 \rho_1 - \varphi_2 \rho_2 - \cdots - \varphi_k \rho_k}$$

c) Define random walk process; show that its mean and variance are time dependent.

d) Define Partial autocorrelation, Given the autocorrelations at lag 1, 2 & 3 of a time series as $-0.55, 0.25 \ \& -0.014$ respectively. Calculate partial autocorrelation at lag-3.

Question No. 3. A time series model is given below,   (12)

$$(1 - B)(1 - 0.2B)X_t = (1 - 0.5B)Z_t$$

a) Identify the model of X_t.
b) Check stationarity and invertibility of the model.
c) Obtain first three ψ – weights of the model when expressed as an MA model.
d) Obtain first three π - weights of the model when expressed as an AR model.

Question No. 4. Show that AR(2) process ,   (08)
$$X_t = \varphi_1 X_{t-1} + \varphi_2 X_{t-2} + Z_t, \text{ will be stationary if;}$$
$$\varphi_1 + \varphi_2 < 1$$
$$\varphi_2 - \varphi_1 < 1$$
$$\varphi_2 > -1$$

Question No. 5. Consider the infinite order MA process $\{X_t\}$, defined by   (10)
$X_t = Z_t + C(Z_{t-1} + Z_{t-2} + \cdots)$, where C is a constant. Show that process is non-stationary. Also show that the series of first differences $\{Y_t\}$, defined by $Y_t = X_t - X_{t-1}$, is a first order MA process and is stationary. Also find the ACF of $\{Y_t\}$.

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

Roll No. in Words. ....

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PAPER: Time Series Analysis-I
Course Code: STAT-411   Part–I (Compulsory)

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

Signature of Supdt.:

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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) For a good time series analysis, successive observations of time series data must be ,

    a) Dependent.
    b) Independent.
    c) Identical.
    d) None of above.

2) The mean and variance of _____ are time dependent.

    a) Purely random process.
    b) Random walk process.
    c) Moving average process.
    d) Autoregressive process.

3) An $MA(q)$ process with MA polynomial $\theta(B)$, is considered invertible if the roots of the Equation, $\theta(B) = 0$,

    a) Must all lie on the unit circle.
    b) Must all lie inside the unit circle.
    c) Must all lie outside the unit circle.
    d) MA process of finite order is always invertible.

4) Consider a time series that follows an AR(1) process with mean 4.5 and an auto regressive Coefficient of 0.4, what is the value of autocorrelation at lag-2?

    a) 0.4
    b) 4.66
    c) 0.16
    d) Not possible to determine the value of auto correlation without knowing error variance.

5) An $ARMA(1,1)$ process given by, $Y_t - Y_{t-1} = Z_t - 0.5Z_{t-1}$, can be considered as,

    a) Stationary and invertible both.
    b) Stationary but not invertible.
    c) Invertible but not stationary.
    d) Neither stationary nor invertible.

6) Partial autocorrelation at lag-1 is equal to,

    a) Zero
    b) Autocorrelation at lag-1.
    c) -1.
    d) $+1$.

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

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Operation Research
Course Code: STAT-412   Part–I (Compulsory)

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

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.(a)Encircle the right answer, cutting and overwriting is not allowed.   (5x1=5)

1. All the parameters in linear programing model are assumed to be
   a) variables   b) constraints   c) functions   d) None of the above

2. Graphic method can be applied to solve a linear programming problem when there are only ___ variables
   a) One   b) More than one   c) Two   d) Three

3. If the feasible region of the linear programming problem is empty , the solution is
   _____
   a) infeasible   b) unbounded   c) alternative d) None of the above

4. If there are "m" original variables and "n" introduced (slack) variables , then there will be _____ columns in the simplex table
   a) m-n   b) m+n+3   c) m+n-1   d) m+n

5. A minimization problem can be converted into a maximization problem by changing the sign of the coefficients in the ____
   a) constraints b) Objective function   c) Both A and B   d) None of the above

Q.1.(b)State weather following statements are True or False.   (5x1=5)

i.   Graphical method can be used for more than two decision variables   (True/False)

ii. In simplex Method, the outgoing variable has largest value of θ_i (True/False)

iii. Business can have unconstrained problems   (True/False)

iv. Definition of Problem is first phase of OR Study   (True/False)

v.   Stochastic problem are easing to solve   (True/False)

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Statistical Mechanics
Course Code: PHY-401   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 probability of finding a system in one of its micro states is

(a) zero   (b) equal   (c) unequal   (d) negative

(ii) In Bose-Einstein condensate the number of particles in ground state is

(a) zero   (b) very large   (c) half of that of first excited state   (d) very small but

non zero

(iii) Bose Einstein condensate is formed at

(a) very high temperature (b) room temperature (c) very low temperature (d) all
temperatures.

(iv) The chemical potential of photon is

(a) 1   (b) 0   (c) undefined   (d) negative

(v) The number of particles and energy both are exchanged in

(a) microcanonical ensemble (b) grand canonical ensemble (c) canonical enesemble (d)

both a and b

(vi) In canonical ensemble, the fluctuation occurs in

(a) Energy (b) temperature (c) concentration (d) All of these

(vii) U- PV equals to

(a) enthalpy (b) Helmholtz free energy (c) entropy (c) None of these

(viii) Electrons in a metal obey

(a) Maxwell-Boltzmann Statistics(b) Bose-Einstein Statistics (c)) Fermi-Dirac Statistics
(d)   None of these

(ix) The particles with integral spin are described by

(a) Fermi-Dirac Statistics (b) Maxwell-Boltzmann Statistics (c) Bose-Einstein Statistics
(d)   All of these

(x) The orbit in phase space for harmonic oscillator is

(a) a circle (b) an ellipse (c) a straight line (d) a hyperbola

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

PAPER: Classical Electrodynamics-I
Course Code: PHY-402   Part–I (Compulsory)

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

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 differential form of Gauss's law is
   - a. $\vec{V} \cdot \vec{E} = 0$
   - b. $\vec{\nabla} \cdot \vec{E} = \rho/\epsilon_o$
   - c. $\vec{V} \times \vec{E} = 0$
   - d. $\vec{V} \times \vec{E} = \rho/\epsilon_o$

2. In spherical coordinates, where the φ is a function of one variable only say $\varphi(r)$, then the general solution of Laplace equation becomes
   - a. $\varphi(r) = a\,r + b$
   - b. $\varphi(r) = a\ln r + b$
   - c. $\varphi(r) = -\frac{a}{r} + b$
   - d. $\varphi(r) = \frac{a}{r} + b$

3. If the conductivity of a material is extremely low, the electrostatic equilibrium is obtained
   - a. extremely rapidly
   - b. extremely slowly
   - c. In an infinite time
   - d. None of these

4. For a homogeneous, isotropic medium characterized by conductivity g and permittivity ϵ, the relaxation time t_c is defined as
   - a. $t_c = \epsilon\,g$
   - b. $t_c = \epsilon / g$
   - c. $t_c = g/\epsilon$
   - d. $t_c = \epsilon + g$

5. The magnetic dipole moment of the circuit is
   - a. $\frac{1}{2}\oint \vec{r} \times d\vec{l}$
   - b. $\oint \vec{r} \times d\vec{l}$
   - c. $\frac{1}{2}I\oint \vec{r} \times d\vec{l}$
   - d. $I\oint \vec{r} \times d\vec{l}$

6. $\epsilon_o\mu_o$
   - a. Has the dimensions of velocity
   - b. Has the dimensions of velocity squared
   - c. Has a dimensions of an inverse velocity
   - d. Has a dimension of an inverse velocity squared

7. The equation which implies that there is no isolated magnetic monopoles
   - a. $\vec{V} \cdot \vec{E} = 0$
   - b. $\vec{\nabla} \cdot \vec{E} = \rho/\epsilon_o$
   - c. $\vec{V} \times \vec{B} = 0$
   - d. $\vec{\nabla} \cdot \vec{B} = 0$

8. The magnetic field at a distance "a" due to a long straight current carrying wire is
   - a. $B = \frac{\mu_o I}{2a}$
   - b. $B = \frac{\mu_o I}{2\pi a}$
   - c. $B = \frac{\mu_o I}{2\pi a^3}$
   - d. $B = \frac{\mu_o I}{2\pi a^{3/2}}$

9. Since divergence of any curl is zero, it is reasonable to assume that magnetic induction $\vec{B}$ may be written as
   - a. $\vec{B} = \vec{\nabla} \times \vec{A}$
   - b. $\vec{B} = \vec{\nabla} \cdot \vec{A}$
   - c. $\vec{B} = \nabla^2 \vec{A}$
   - d. $\vec{B} = \mu_o J$

10. For paramagnetic materials the magnetic susceptibility χ_m is
    - a. Negative
    - b. Positive
    - c. Zero
    - d. None of these

UNIVERSITY OF THE PUNJAB

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

Roll No. ....

PAPER: Nuclear Physics-I
Course Code: PHY-403   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 following questions.   (10 x 2 = 20)

(i)- The nucleons constantly emit and absorb pions. Why the neutrons and protons are never found with other than their usual masses?

(ii)- Explain why the sum of masses of two protons and two neutrons is not equal to the mass of alpha particle.

(iii)-Give a comparison of proportional and ionization chambers.

(iv)-What are the limitations of nuclear emulsion technique?

(v)- Why neutron number tends to exceed proton number in stable nuclei?

(vi)-The observed spin of $_7N^{14}$ is $\hbar$. Show that it cannot be explained on electron-proton model of nucleus.

(vii)-What are achievements and failures of shell nuclear model?

(viii)- What is meant by range of alpha particles? On what factors it depend upon?

(ix)- Electrons as such do not exist in the nucleus. What then is the cause of beta decay?

(x)-Can a cyclotron be used to accelerate electrons? If not, why?

Q. 3: (a)-What is meant by magnetic dipole moment? By giving an example show that magnetic moments are not additive.   01 + 02

(b)-Give principle, construction and working of synchro-cyclotron.   01 + 03 + 03

Q. 4: (a)-Discuss Fermi theory of beta decay and calculate momentum and energy distributions of emitted electrons. Draw the expected shape of these distributions and also draw Fermi-Kurie plot.   06

(b)-Highlight the achievements and failures of liquid drop model. Also give similarities between nucleus and liquid drop model.   04

Q. 5: (a)-How Gamow-Gurney-Condon theory explains the problems of alpha decay raised by   05
classical theory?

(b)- What is proton-proton scattering? What does information it give about nuclear forces? Also differentiate between proton-proton and neutron-proton scattering.   05

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

PAPER: Nuclear Physics-I
Course Code: PHY-403   Part–I (Compulsory)

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

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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)- Each nucleon in a nucleus interacts chiefly with the general force field produced by all other nucleons. This is assumption of:
(a) liquid drop model
(b) shell model
(c) collective model
(d) all of above

(ii)- The ionization energy of an atom as compared to binding energy of its nucleus is:
(a) greater
(b) same
(c) less
(d) none of above

(iii)- The existence of neutrino was postulated to explain the contradictions in law / laws of conservation of:
(a) energy
(b) momentum
(c) mass
(d) both a and b

(iv)- If a radioactive nuclide $_ZX^A$ decays by emitting a gamma ray, then the resulting nuclide has:
(a) a different Z value
(b) the same Z and A values
(c) a different A value
(d) none of these

(v)- If electric dipole field has odd parity then magnetic dipole field will have ----- parity.
(a) even
(b) odd
(c) mixed
(d) zero

(vi)- In scintillation counter, electrons are accelerated by:
(a) electric field
(b) magnetic field
(c) oscillating field
(d) both a and b

(vii)- Number of protons in a nucleus is called its:
(a) mass number
(b) atomic number
(c) quantum number
(d) none of above

(viii)- For spherically symmetric charge distribution, electric quadrupole moment is:
(a) positive
(b) negative
(c) zero
(d) not predicted yet

(ix)- Nuclear forces are:
(a) charge independent
(b) spin dependent
(c) short range
(d) all of above

(x)- In cyclotron, the frequency of rotation of charged particle decreases as the velocity:
(a) increases
(b) decreases
(c) remains constant
(d) none of above

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Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Relativity and Cosmology
Course Code: PHY-404   Part–I (Compulsory)

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

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 particles is subluminal?

  (a) tachyon   (b) elementary particles   (c) Photons   (d) Gravitons

ii. Under which condition Lorentz transformation reduces to Galilean transformation?

  (a) $v = c$ (b) $v = 0$ (c) $v >> c$ (d) $v << c$

iii. For $\Delta s^2 = c^2 \Delta t^2 - \Delta x^2$, the interval will be time like interval if:

  (a) $\Delta s^2 = 0$ (b) $\Delta s^2 = 1$ (c) $\Delta s^2 > 0$ (d) $\Delta s^2 < 0$

iv. If $F^\mu v_\mu$ is orthogonal then

  (a) $F^\mu v_\mu = 1$ (b) $F^\mu v_\mu = -1$ (c) $F^\mu v_\mu = 0$ (d) $F^\mu v_\mu \neq 0$

v.   The red shift in the spectral lines of light reaching us from other galaxies implies that these galaxies

  (a) are moving closer to one another   (b) are moving farther apart from one another
  (c) are in rapid rotation   (d) consist predominantly of red giant stars

vi. Gravitational red shift corresponds to

  (a) Longer wavelength   (b) Smaller frequency   (c) Observer in weaker gravitational field
  (d) All of the above

vii. Theory which states that black hole is formed when sufficient compact mass can deform space time is known as

  (a) theory of general relativity   (b) theory of electromagnetic fields
  (c) theory of gravitational fields   (d) theory of particle radiation

viii. Which one is true for the fourth component of current density

  (a) $J_4 = ic\rho$ (b) $J_4 = ic/\rho$ (c) $J_4 = i\varphi/c$ (d) $J_4 = ic\varphi$

ix. Simultaneity is
  (a) dilated   (b) absolute   (c) invariant   (d) relative

x.   Which one has zero divergence
  (a) Four current density   (b) Electromagnetic field tensor   (c) Four vector potential
  (d) All of these   (e) None of these

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

Roll No. ....

PAPER: Particle Physics-I

Course Code: PHY-407   Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED
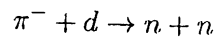
Question 2:

$(2 \times 10 = 20)$

Write short answers of the following questions.

(i) Draw the Feynman diagram showing the mechanism of β^--decay.

(ii) Define baryons and mesons. How are they different? Give their examples.

(iii) Give the relative strengths and the mediating particles of the strong, weak and electromagnetic interactions.

(iv) Define parity operation. What are the eigenvalues of the corresponding operator?

(v) What are the values of the spin, isospin, charge and strangeness quantum numbers of the charm quark?

(vi) State CPT theorem.

(vii) Give an example of Strange particles. Explain why are they called Strange particles.?

(viii) Which interaction is responsible for the decay $K^0 \to \pi^+\pi^-$ and why?

(ix) How many and which quarks does Σ^+ contain?

(x) Briefly explain the phenomena of asymptotic freedom and quark confinement.

Question 3:

(10)

What is parity? Determine the intrinsic parity of pion (π^-) by considering the reaction:

$$\pi^- + d \to n + n$$

Question 4:

(10)

Show that four Maxwell equations are equivalent to the following field equation in Lorentz gauge.

$$\Box^2 A^\mu = J^\mu$$

Question 5:

(10)

What is charge conjugation operation and what are the eigen values of the corresponding operator? Show that a proton-antiproton system in a state of definite orbital angular momentum, l, and spin, s, is an eigen state of the charge conjugation operator with eigen value $(-1)^{l+s}$.

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Seventh Semester – 2019

Roll No. in Fig. ....

Roll No. in Words. ....

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Examination: B.S. 4 Years Program

PAPER: Particle Physics-I
Course Code: PHY-407   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.

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

(i) The phenomenon of quark confinement is related to the fact that

  (a) α_s becomes very large at large distances

  (b) α_s becomes very large at short distances

  (c) α_s becomes very small at large distances

  (d) α_s becomes very small at short distances

(ii) In β^+ decay an up quark converts into

  (a) strange quark   (b) anti down

  (c) anti up   (d) down quark

(iii) The process $p \rightarrow \pi^+ + \pi^0$ is not allowed due to violation of conservation of ————

  (a) lepton no   (b) baryon no

  (c) electric charge   (d) meson no

(iv) Hadrons can exist if

  (a) total electric charge is zero   (b) total isospin is zero

  (c) total color charge is zero   (d) color spin is zero

(v) Isospin is symmetry of

  (a) weak interaction   (b) strong interaction

  (c) electromagnetic interaction   (d) all of these

(vi) The anti-top quark ($\bar{t}$) carries a charge of

  (a) +1/3   (b) +2/3

  (c) -1/3   (d) -2/3

(vii) Which of the following forces have infinite range?

  (a) Electromagnetic and Gravitational forces

  (b) Electromagnetic and Weak forces

  (c) Strong and Gravitational forces

  (d) Weak and Gravitational forces

(viii) Using Lorentz gauge, the Maxwell equations can be written in the following 4-vector form

  (a) $\Box^2 A^\mu = j^\mu$ (b) $\Box^2 A^\mu = \rho^\mu$

  (c) $\Box^2 A^\mu = 0$ (d) $\Box^2 A^\mu = -j^\mu$

(ix) The G-parity of charged and neutral pions is

  (a) +1   (b) -1

  (c) 0   (d) none of them

(x) For ground state all the baryons have

  (a) odd parity   (b) mixed parity

  (c) even parity   (d) conserved parity

UNIVERSITY OF THE PUNJAB

Seventh Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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PAPER: Particle Physics-II
Course Code: PHY-408   Part–I (Compulsory)

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

Signature of Supdt.:

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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) Klein-Gordon equation describes the particle which is moving relativistically with spin

(a) ½
(b) Zero
(c) 1
(d) none of these

2) Fermi Golden rule is described by the relation

(a) $W_{fi}=2\pi|V_{fi}|\rho(E_i)$
(b) $W_{fi}=2\pi|V_{fi}|^2\rho(E_i)$
(c) $W_{fi}=2\pi|V_{fi}|\rho(E_i)$
(d) none of these

3) Scalar product of two four vector is defined as

(a) $A.B = A^oB^o - A.B$
(b) $A.B = A^oB^o + A.B$
(c) $A.B = A.B - A^oB^o$
(d) none of these

4) The expression for the current density J obtained from the Klein-Gordon equation of spin zero particle represented by state ϕ

(a) $i(\phi^*\nabla\phi - \phi\nabla\phi^*)$
(b) $-i(\phi^*\nabla\phi - \phi\nabla\phi^*)$
(c) $-i(\phi\nabla\phi^*\phi^*\nabla\phi)$
(d) none of these

5) One example of Lorentz invariant quantity is

(a) relativistic mass
(b) probability density
(c) length of four vector
(d) relative velocity

6) The time dependent Schrödinger equation for a particle is

(a) Lorentz invariant but non relativistic
(b) relativistic but non invariant
(c) non relativistic and non invariant under Lorentz transformation
(d) relativistic

7) The result of following anti-commutation relation $\{\gamma^\mu, \gamma^\nu\}$ is

(a) 0
(b) 1
(c) $2g^{\mu\nu}$
(d) δ^μ_ν

8) The Dirac equation is

(a) 1st order differential
(b) 2nd order differential
(c) Non relativistic
(d) Non linear

9) In Dirac equation all alphas are

(a) Identity
(b) Traceless
(c) Non traceless
(d) Inverse of other

10) $\psi^\dagger\gamma^0\gamma^\mu\psi$ represents

(a) four vector current
(b) Dirac matrices
(c) probability density
(d) Adjoint spinor

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Advanced Electronics-I (Theory)
Course Code: PHY-411   Part–I (Compulsory)

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

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.   An operational amplifier u-741 internally consist of _____ transistors.
   a)   24   b)   10   c)   34   d)   None of these

ii.   ROM is _____ type of memory.
   a)   Data   b)   Program   c)   Control   d)   None of these

iii.   Counter is _____
   a)   Combinational circuit   b)   Sequential circuit
   c)   Both A & B   d)   None of these

iv.   Digital data is _____ type of data.
   a)   Discrete   b)   Analog   c)   Function   d)   None of these

v.   The storage element for a static RAM is:
   a)   Resistor   b)   Inductor   c)   Capacitor   d)   None of these

vi.   The ideally input impedance of an operational amplifier is:
   a)   Maximum   b)   Minimm   c)   Infinity   d)   Zero

vii.   Latch is _____ type of multivibrator.
   a)   Bistable   b)   Monostable   c)   Astable   d)   None of these

viii.   The gain of an inverting amplifier depends upon _____.
   a)   Internal structure   b)   External resistances
   c)   Both A & B   d)   None of these

ix.   Which gate is known as Universal gate _____.
   a)   AND   b)   XOR   c)   NOR   d)   OR

x.   Which gate is known as comparator gate _____.
   a)   XOR   b)   AND   c)   NOR   d)   XNOR

UNIVERSITY OF THE PUNJAB

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

Roll No. ....

PAPER: Solid State Physics-I
Course Code: PHY-419   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.   [2x10=20]

   i.   Why do we call free electrons in metal as forming a dense gas?

   ii. Of the two Fermi Spheres, one is bigger than the other. Why is it due to?

   iii. What is the effect of free electron approximation on the behavior of electrons in metals?

   iv. In Oppenheimer approximation, what are the considerations which led to find out an effective Hamiltonian?

   v.   How is the concept of Orthogonalzed Plane Wave (OPW) evolved for band calculation of solid?

   vi. State any two physical phenomena which cannot be explained on the basis of free electron model.

   vii. Write the components of the Hamiltonian for free electrons in the Hartee approximation.

   viii. In the solid state problems, which properties does a solid exhibit during its interaction with electromagnetic radiaotn?

   ix. What factors make the electron lighter or heavier in solid as compared to its mass when it is free?

   x.   What is the form of wave function to be used in Augmented Plane Wave (APW) method and give its properties?

Q.3. How do free electrons in metal contribute to heat conductivity? Derive an expression for the thermal conductivity coefficient of metal.   [10]

Q.4. How is the wave function for electron, in a periodic potential, constructed in the Tight Binding Approximation (LCAO)? Show that such wave function satisfies the Bloch condition and is normalized.   [10]

Q.5. Give a brief description of the pseudopotential method to construct wave function.   [10]

PAPER: Solid State Physics-I
Course Code: PHY-419   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. In the free electron model of solids
   A. Energy bands are formed at the zone boundary
   B. Metals can be differentiated from insulators
   C. Superconductivity phenomenon can be explained
   D. No concept of energy bands is evolved

2. The Linear Combination of Atomic orbital (LCAO) method for band calculation of solid is suitable for
   A. Metals
   B. Semiconductor/insulator
   C. Poly crystalline solid
   D. Amorphous solid

3. Which is not true for electrons in a periodic boundary condition
   A. Continuous k states
   B. Discrete k states or quasi-continuous
   C. There are finite k states possible
   D. The P.E of free electron is zero

4. When sample of a solid is subjected to electric field, the free electrons in solid
   A. Gain velocity increment greater than their thermal velocity
   B. The net momentum acquired by the free electrons is zero
   C. The drift velocity of free electron is of the order of 1-10 cm/s
   D. Have mean free path equal to the length of the conductor

5. The ratio of thermal conductivity to electrical conductivity (Weidmann -Franz law) depends on
   A. Density of electrons
   B. Mass of electrons
   C. Relaxation time
   D. None of the above

6. In the x-ray diffraction from crystalline solid, the diffraction pattern
   A. Replicates exactly the real atomic position of the solid
   B. Is a map of the reciprocal lattice of the crystal
   C. Shows the position of electrons is solid
   D. Gives the surface morphology of the crystal

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UNIVERSITY OF THE PUNJAB

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

Roll No. ....

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

PAPER: Solid State Physics-II
Course Code: PHY-421   Part – II

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2: Please give short answers to the following questions.   (2×10 = 20)

a) Differentiate the ground state of a superconductor and normal conductor.

b) Which of the two (normal or superconducting) states of a metal are more ordered? Explain.

c) Describe the role of mass of nuclei on the critical temperature of the superconductors?

d) How does the Type-I to Type-II superconducting transition occurs due to doping?

e) Differentiate between single particle tunneling and pair particle tunneling.

f) What are the sequences of events when electron-hole drop is formed?

g) Describe the possible ways used to calculate the binding energy of excitons?

h) Define excitons and describe examples of crystals having Frenkel excitons.

i) Write down important lengths that play important role in theory of superconductivity.

j) Discuss ferroelectric domains.

Question no.3   (10+5)

(a) How would you reach to mathematical expression which shows that a DC current flows across the junction in the absence of any electric or magnetic field.

(b) Describe microwave and infrared properties of superconductors

Question no.4   (10+5)

(a) Derive the expression used to estimate H_{C1} and H_{C2} for a Type-II superconductors

(b) Using the definition of atomic polarizability, derive Clausius-Mossotti relation.

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

PAPER: Method of Study & Research
Course Code: POL-401   Part–I (Compulsory)

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

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) Research design includes all of the following, except----------------
   a) Data collection   b) Sampling design   c) Analysis of data

2) Which type of study is loosely structured to understand topic---------
   a) Explanatory   b) Causal   c) Descriptive

3) The goal of a formal study is to ------------------
   a) Develop hypothesis   b) Test hypothesis   c) Discover future

4) A quantitative Research focuses on-------------------
   a) Numerical explanation   b) Verbal explanation   c) Descriptive analysis

5) Field Studies are conducted in-------------------
   a) Actual environment   b) Artificial environment   c) controlled environment

6) Literature Review helps to know--------------------------
   a) What is already known   b) Key contributors   c) Both a & b

7) In Qualitative research Theory is _____
   a) Tested   b) developed   c) Both are wrong

8) Which of the following is not data collection method--------------
   a) Research questions   b) Participant observation   c) Structured Interview

9) A proposal is known as --------------------------
   a) Work plan   b) Out line   c) Both are wrong

10) Method in which researcher uses qualitative and quantitative techniques are called ------
    a) Mixed method   b) Multi method   c) Both are correct

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UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....
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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.   Diplomacy is an instrument in _____
      a) International politics   b) Government of Pakistan   c) UK.

2.   Who was the writer of new Directions in the study of Foreign Policy_____
      a) Morgenthau   b) Charles Stephen   c) David Lavis   d)Charles F. Harmans

3.   Geography and Economic are major determinants of _____
      a) Foreign Policy   b) World   c) Internal Policy   d) Local Policy

4.   Agra Summit was held in _____
      a) 1998   b) 1999   c) 2001   d) 1996

5   Cricket Diplomacy comes under the head of _____
      a) Track-I   b) Track-1.5   c) Track-II   d)Track-III

6.   Pakistan's Ambasador to US now a days is _____
      a) Dr. Asad Majeed Khan   b) Abdul Hassan Isphani   c) Jahangir Khan

7.   Foreign Policy analysis helps to _____
      a) Decide   b) Promote   c) States   d) none of above

8.   How many basic approaches of Foreign Policy _____
      a) One   b) Two   c) Three   d) Four

9   Pakistan India Composite Dialogue were initiated in _____
      a) 2001   b)2002   c) 2003   d) 2004

10   Post 9/11 foreign policy of many states is more _____
      a) hard   b) Coercive   c) abstract

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Seventh Semester – 2019

Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.: ....

PAPER: Foreign Policy of Pakistan

Course Code: POL-404   Part–I (Compulsory)

MAX. TIME: 15 Min.

MAX. MARKS: 10

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

سوال نمبر 1:   صحیح جواب کی نشاندہی کیجے۔

i.   Geneva Accords (1988) was signed between:
(a)   Afghanistan and Pakistan   (b)   India and Pakistan   (c)   USA and Pakistan

i.   جنیوا ایکارڈ 1988ء میں کن دو ممالک کے درمیان طے پایا
(الف)   افغانستان اور پاکستان   (ب)   انڈیا اور پاکستان   (ج)   امریکہ اور پاکستان

ii.   Captain Karnal Sher Khan received Nishan-e-Haider for showing great valour in the war of:
(a)   Indo-Pakistan War (1965)   (b)   Indo-Pakistan War (1971)
(c)   Kargil War (1999)

ii.   نشانِ حیدر، کیپٹن کرنل شیر خان کو کس جنگ میں جرأت کا مظاہرہ کرنے کے نتیجے میں نوازا گیا:
(الف)   بھارت، پاکستان جنگ(1965)   (ب)   بھارت، پاکستان جنگ(1971)   (ج)   کارگل جنگ(1999)

iii.   Pakistan announced its withdrawal from Central Treaty Organization (CENTO) in:
(a)   1965   (b)   1972   (c)   1979

iii.   پاکستان نے کس سال سینٹو کی رکنیت ختم کی؟
(الف) 1965   (ب) 1972   (ج) 1979

iv.   After Kargil War, the boundaries between India and Pakistan got settled according to the terms decided in:
(a)   Geneva Accord (1988)   (b)   Lahore Resolution (1940)
(c)   Simla Agreement (1972)

iv.   کارگل جنگ کے بعد، بھارت اور پاکستان کی حدود کا تعین کس معاہدے میں طے پائے جانے والی شرائط کے مطابق کیا گیا:
(الف)   جنیوا ایکارڈ(1988)   (ب)   قرارداد لاہور(1940)   (ج)   شملہ معاہدہ(1972)

v.   China-Pakistan Economic Corridor plans to further connect to which region:
(a)   Europe   (b)   Central Asia   (c)   America

v.   پاکستان-چین اقتصادی راہداری مزید کس خطے کو جوڑنے کا منصوبہ رکھتی ہے:
(الف)   یورپ   (ب)   وسطی ایشیاء   (ج)   امریکہ

vi.   Tashkent Declaration was signed between:
(a)   Uzbekistan and Pakistan   (b)   India and Pakistan
(c)   Kazakshtan and Pakistan

vi.   تاشقند معاہدہ کن دو ممالک کے مابین طے پایا؟
(الف)   ازبکستان اور پاکستان   (ب)   بھارت اور پاکستان   (ج)   قازقستان اور پاکستان

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UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Diplomacy
Course Code: POL-405   Part–I (Compulsory)

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

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. China is more focused on _____
   i) Public Diplomacy   ii) Coercive Diplomacy   iii) Dollar Diplomacy

2. Economic diplomacy is the use of the full spectrum economic tools of a state to achieve its
   i) National Interests   ii) International Interest   iii) Local Interest

3. The infusion of interest groups, legislatures, and public opinion into the foreign policy process is referred to as
   i)Open diplomacy   ii)Democratized diplomacy   iii)Parliamentary diplomacy

4. Direct contact of the heads of government or states falls under the category of _____ diplomacy
   (i) New   (ii)   Old   (iii)   Summit

5. During 1960 the relationship between open and secret diplomacy was introduce by
   i) Nicolson   ii) Mechiavelli   iii) George Bush

6. Modern diplomacy emerged as an organised profession in _____
   (i) Greece   (ii) Italy   (iii) Britain

7. _____is responsible for contacting foreign policy and coordination between foreign ministry and diplomats
   (i) Secretary of State   (ii) Interior Minister   (iii) Diplomat

8. Till the end of _____century traditional diplomacy continued
   (i) 17th   (ii) 18th   (iii) 19th

9. _____method of diplomacy is usually known as traditional method
   (i) Italian   (ii) French   (iii) German

10. Trump believes in _____ Diplomacy
    i) Coercive   ii) Public   iii) Secret

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Foreign Policies of USA and UK
Course Code: POL-406   Part–I (Compulsory)

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

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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)

سوال نمبر۱:   صحیح جواب کی نشاندہی کیجیے۔

i.   NATO was established in the year:
(a)   1949   (b)   1952   (c)   1953

i.   نیٹو کس سال میں معرضِ وجود میں لائی گئی؟

(الف) 1949ء   (ب) 1952ء   (ج) 1953ء

ii.   Richard Nixon visited Beijing in the year:
(a)   1971   (b)   1972   (c)   1973

ii.   رچرڈ نکسن نے کس سال بیجنگ کا تاریخی دورہ کیا؟

(الف) 1971ء   (ب) 1972ء   (ج) 1973ء

iii.   American President Woodrow Wilson belonged to:
(a)   Republican Party   (b)   Democratic Party   (c)   Libertarian Party

iii.   امریکی صدر وڈرو ولسن کس پارٹی سے تعلق رکھتے تھے؟

(الف) ریپبلکن پارٹی   (ب) ڈیموکریٹک پارٹی   (ج) لیبرٹیرین پارٹی

iv.   Who is the head of Commonwealth?
(a)   David Cameron   (b)   Theresa May   (c)   Queen Elizebeth II

iv.   دولتِ مشترکہ کا سربراہ کون ہے؟

(الف) ڈیوڈ کیمرون   (ب) تھریسا مے   (ج) ملکہ الزبتھ II

v.   Which country did not invade Egypt during Suez Canal Crisis:
(a)   Israel   (b)   Britain   (c)   USA

v.   سانحہ سوئز نہر کے دوران کس ملک نے مصر پر حملہ نہیں کیا؟

(الف) اسرائیل   (ب) برطانیہ   (ج) امریکہ

vi.   Complete diplomatic relations between USA and China were established in:
(a)   1949   (b)   1962   (c)   1972

vi.   امریکہ اور چین کے سفارتی تعلقات کس سال میں بحال ہوئے؟

(الف) 1949ء   (ب) 1962ء   (ج) 1972ء

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Examination: B.S. 4 Years Program

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Lisaniyaat

Course Code: Urdu-401   **Part–I (Compulsory)**

MAX. TIME: 15 Min.

MAX. MARKS: 10

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)

سوال۱: دیے گئے جوابات میں سے درست جواب کا انتخاب کیجیے۔

Q1: Select correct answer amongst the given four.

ا) 'اشٹ ادھیایی' کس کی تصنیف ہے؟

د) چاڻکیے   ج) چندرگپت   ب) پاننی   ا) پتن جلی

1) Who is the author of Ashtadhayayi?

   A) Patanjali   B) Panini   C) Chandragupta   D) Chanakya

۲) یورپ میں تقابلی لسانیات کا آغاز کس زبان کے متعارف ہونے سے ہوا؟

د) سنسکرت   ج) دراوڑی   ب) فارسی   ا) عربی

2) 'Comparative Linguistics' initiated in Europe with the introduction of ...

   A) Arabic   B) Persian   C) Dravidian   D) Sanskrit

۳) 'مارفونیات' کا تعلق لسانیات کی کس شاخ سے ہے؟

د) نحویات   ج) توضیحی لسانیات   ب) تاریخی لسانیات   ا) شماریاتی لسانیات

3) 'Morpho Phonemics' belongs to which branch of Linguistics?

   A) Computational Linguistics   B)   Historical Linguistics

   C) Descriptive Linguistics   D)   Syntax

۴) قواعدِ زبان کے لیے 'نظامیات' کا لفظ کس نے متعارف کروایا؟

د) سہیل بخاری   ج) گیان چند جین   ب) سلیم اختر   ا) خلیل صدیقی

4) Who Introduces word 'Nizamiyaat' to describe Grammer?

   A) Khalil Siddiqui   B) Salim Akhter   C) Gayan Chund Jane

   C) Suhail Bukhari

۵) 'اردو زبان کا ارتقا' کس کی تصنیف ہے؟

د) خلیل صدیقی   ج) ڈاکٹر شوکت سبزواری   ب) مولوی عبدالحق   ا) ڈاکٹر مہر عبدالحق

5) Who is the author of 'Urdu Zuban Ka Irteqa'?

   A) Dr. Mehar Abdul Huq   B) Molvi Abdul Huq

   C) Dr. Shaukat Sabzwari   D) Khalil Siddiqui

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UNIVERSITY OF THE PUNJAB
Seventh Semester – 2019
Examination: B.S. 4 Years Program

Roll No. ....

PAPER: Lisaniyaat
Course Code: Urdu-401 Part – II

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

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

(2.5x8=20)

سوال۲: درج ذیل تمام سوالات کے مختصر ترین جوابات دیجیے۔

ا) لسانیات کی روسے زبان کی تعریف بیان کیجیے۔

1) According to Linguistics what does Language mean?

۲) ہندوؤں کی چار مقدس کتابوں کے نام درج کیجیے۔

2) Write the names of four sacred books of Hindus.

۳) اردو حروفِ تہجی میں مصوتوں کی نشان دہی کیجیے۔

3) Signify Vowels of Urdu alphabets.

۴) فلالوجی کس زبان کا لفظ ہے، یہ کن دو الفاظ کا مرکب ہے اور اس سے کیا مراد ہے؟

4) 'Philology' is derived from which language, made up of which two words, and what does it mean?

۵) تاریخی لسانیات کے دائرہ کار کی وضاحت کیجیے۔

5) Define Historical Linguistics.

۶) 'بانگڑو' زبان کس علاقے میں رائج ہے؟

6) 'Bangerhoo' language is spoken in which area?

۷) لسانیات سے متعلق جارج ابراہام گریریسن کی کتاب کا کیا نام ہے اور یہ کتنی جلدوں پر مشتمل ہے؟

7) What is the name of Grierson's book on Linguistics, and how many volumes it has?

۸) عین الحق فرید کوٹی کس قدیم زبان کو اردو کی بنیاد قرار دیتے ہیں اور کیوں؟

8) Ain-Ul-Huq Fareedkoti proves which language as the base language of Urdu and why?

(10x3=30)

سوال۳: تمام سوالوں کے جامع جواب دیجیے۔

ا) 'لسانیات' سے کیا مراد ہے؟ لسانیات کی اہم شاخ مارفیمیات کی وضاحت کیجیے۔

1) What does Linguistics mean? Define its branch 'Morphology'.

۲) ترکیب 'مغربی ہندی' کس کی اختراع ہے؟ مغربی ہندی کی پانچ اہم بولیوں پر وضاحتی نوٹ قلم بند کیجیے۔

2) Who has carved word 'Western Hindi'? Explain its five languages.

۳) اردو زبان کی ابتدا کے حوالے سے قیاس پر مبنی قدیم نظریات کا تنقیدی جائزہ پیش کیجیے۔

3) Present critical analysis of acnciet theories ragarding the beginning of Urdu Language.

UNIVERSITY OF THE PUNJAB

Roll No. in Fig. ....

Roll No. in Words. ....

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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.

اس پرچے کے سوالات کو اسی شیٹ (Sheet) پر حل کریں۔

حصہ اول: درج ذیل میں سے درست جواب کا انتخاب کیجیے۔ کاٹ کر یا مٹا کر لکھا گیا جواب درست شمار نہ ہوگا۔   (10 نمبر)

ہر سوال کے لیے ایک نمبر مختص ہے۔

(۱) پیرس کی مشہور لائبریری کا نام ہے؟
(ا) بلو نکسنا سیویاں   (ب) ازسیو   (ج) زندہ زبانوں کا قومی ادارہ   (د) عالمیتر یونیورسل

(۲) ''حلقہ ارباب ذوق'' کا پرانا نام ہے؟
(ا) بزم محفل مشاعرہ   (ب) بزم شعر و شاعری   (ج) بزم داستاں گویاں   (د) بزم نثر نگاری

(۳) جاپانی بابائے اردو کہا جاتا ہے؟
(ا) پروفیسر ربجی کو   (ب) پروفیسر تاکاشی سوزوکی   (ج) پروفیسر فائل کو   (د) ربجی اور تاکاشی

(۴) بیرونی ممالک میں درس و تدریس کس کی تصنیف ہے؟
(ا) آغا افتخار حسین   (ب) انعام الحق جاوید   (ج) جواز جعفری   (د) آغا حشر کاشمیری

(۵) انجمن پنجاب کے صدر کا نام لکھیں۔
(ا) جی ڈبلیو لائٹز   (ب) کرنل ہالرائیڈ   (ج) منشی پرسکھ رائے   (د) سرسید احمد خان

(۶) مجلس مشاعرہ کا تعلق کہاں سے ہے؟
(ا) کراچی   (ب) اسلام آباد   (ج) لاہور   (د) فیصل آباد

(۷) اردو بزم مشاعرہ لاہور کے بانی ہیں؟
(ا) ارشد گورمانی   (ب) شاہ دین ہمایوں   (ج) حکیم شجاع الدین   (د) حکیم امین الدین

(۸) شعری صنف ہائیکو کا تعلق کس ملک سے ہے؟
(ا) انڈیا   (ب) پاکستان   (ج) جاپان   (د) پیرس

(۹) اردو گرامر کی پہلی کتاب کا نام ہے؟
(ا) نورُاللغات   (ب) دریائے لطافت   (ج) تاریخ ادب اردو   (د) جامع اللغات

(۱۰) حلقہ ارباب ذوق کے نمائندہ شاعر کون ہیں؟
(ا) نسیم حجازی   (ب) سردار جعفری   (ج) نصیر احمد   (د) میراجی

UNIVERSITY OF THE PUNJAB

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

PAPER: Principle of Systematics
Course Code: ZOOL-401   Part–I (Compulsory)

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

<u>**Attempt this Paper on this Question Sheet only.**</u>
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.   Neurogenic variations include:
A) change in colour   B) changes after death   C) polymorphism   D) sexual differences

ii.   In a species with sexual dimorphism male and female belong to two different
A) taxon   B) phenon   C) category   D) subspecies

iii.   The component species of a super species is known as
A) allospecies   B) super species   C) semispecies   D) species

iv.   Subspecies belong to -------------category.
A) specific   B) higher   C) infraspecific   D) none

v.   At a given time only one name will be _____for a taxon.
A) valid   B) available   C) valid and available   D) none

vi.   The properties of taxa names are uniqueness, universality and
A) establishment   B) stability   C) commonness   D) none

vii.   Evolutionary classification use ---------------------------------- characters.
A) monophyletic   B) paraphyletic   C) polyphyletic   D) All

viii.   Every specimen in type series from which no holotype is designated is known as
A) holotype   B) paratype   C) syntype   D) lectotype

ix.   Taxa intermediate between subspecies and species are referred as
A) semispecies   B) allospecis   C) subspecies   D) superspecies

x.   Morphologically similar but reproductive isolated species are called
A) subspecies   B) type species   C) sibling species   D) superspecies

Roll No. in Fig. ....

Roll No. in Words. ....

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

(i)   SLATE is the metamorphic form of

   a. Shale   b. Quartz   c. Mudstone   d. Sandstone

(ii)   The conversion of plant fossilized material into coal is called

   a. Stratification   b. Impression   c. Sedimentation   d. Fossilization

(iii)   Mammals are index fossils of Era

   a. Paleozoic b. Mesozoic   c. Cenozoic   d. Archaeozoic

(iv)   The IGNEOUS rocks produced by LAVA called

   a. Plutonic   b. Volcanic   c. Contact   d. Regional

(v)   The geological changes underwent on earth are documented as

   a. Era   b. Period   c. Eon   d. Epoch

(vi)   The four glaciation events are reported in the Epoch

   a. Pleistocene b. Holocene   c. Miocene   d. Pliocene

(vii)   First record of Proboscidea is known as

   a. *Protylopus*   b. *Protomeryx*   c. *Mammuthus*   d. *Moeritherium*

(viii) The basal type in Horse Evolution is known as

   a. *Hipparion*   b. *Hyracotherium*   c. *Pliohippus* d. *Sivalhippus*

(ix)   The fossils are mostly found in the _____rocks

   a. Sedimentary   b. Plutonic c. Metamorphic d. Volcanic

(x)   The crust and upper most part of the mantle constitutes the _____.

   a. Hydrosphere   b. Biosphere   c. Lithosphere   d. Atmosphere

UNIVERSITY OF THE PUNJAB

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

PAPER: Economic Zoology
Course Code: ZOOL-405 Part–I (Compulsory)

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

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 Moth Gnorimoschema operculella is a pest of:
   (a) Cloths   (b) Rice
   (c) Potato   (d) Cotton

ii. Microtermes obesi is a pest of:
   (a) Wood   (b) Stored Grains
   (c) Books   (d) Fruits

iii. The intermediate host of the Filaria worm Wuchereria bancrofti is one of these mosquitoes:
   (a) Anopheles   (b) Culex
   (c) Aedes   (d) Plasmodium

iv. Taenia solium is commonly known as:
   (a) Hydated Worm   (b) Pork Tapeworm
   (c) Beef Tapeworm   (d) Silk worm

v. Espundia disease is caused by:
   (a) Leishmania brasiliensis   (b) Leishmania donovani
   (c) Leishmania tropica   (d) None of these

vi. The Mangemite Sarceptes scabiei is a pest of:
   (a) Human beings   (b) Horses and Sheep
   (c) Human beings, Horses and Sheep   (d) Poultry

vii. The fat of Pig is termed as:
   (a) Ham   (b) Lard
   (c) Sausage   (d) None of these

viii. The cattle, horses, goats and deer are attacked by one of the following:
   (a) Argas perscus   (b) Boophilus microplus
   (c) Eutrombicula alfreddugesi   (d) None of these

ix. Sahiwal breed refers to:
   (a) Buffaloes   (b) Goats
   (c) Sheep   (d) Cow

x. The Rat Flea is transmitter of Bubonic Plague by one of the following Bacterium:
   (a) Pasteurella irritans   (b) Bacillus spp.
   (c) Pasteurella pestis   (d) All of these

UNIVERSITY OF THE PUNJAB

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

Roll No. in Fig. ....

Roll No. in Words. ....

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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. _____ Bacteria require low level of oxygen for growth and cannot tolerate atmospheric oxygen level
   A)   Aerobic
   B)   Anaerobic
   C)   Facultative
   D)   Microaerophilic
   E)   None of these

ii. Numerical Taxonomy depends on
   A)   % similarity index of strains to be compared
   B)   Intuitive method of classifying bacteria
   C)   Genetic relatedness
   D)   Predictability of a classification scheme
   E)   None of these

iii. The descendants of a single isolation in pure culture are called as
   A)   Species
   B)   Type species
   C)   strain
   D)   None of these

iv. Endospores are heat resistant because it contains:
   A)   Calcium-dipicolinic acid
   B)   Poly-β-hydroxybutyrate
   C)   Polyisoprenoid
   D)   Heteropolysaccharides
   E)   None of these

v. Which microorganism cannot be grown on artificial media?
   A)   Protozoa
   B)   Yeast
   C)   Algae
   D)   Virus
   E)   None of these

vi. Viable bacterial cells can be counted by:
   A)   Turbidimetric method
   B)   Direct microscopic count
   C)   Membrane filter count
   D)   Electronic enumeration of cells
   E)   None of these

P.T.O.

UNIVERSITY OF THE PUNJAB

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

PAPER: Applied Microbiology
Course Code: ZOOL-417   Part – II

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

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2   Give short answer of the following   2x10=20

  i.   Write the name of bacteria involved in food and water born infection.
  ii.   What is meant by microbial spoilage of food? Briefly discuss
  iii.   Write general scheme for detection of microorganism of food.
  iv.   What is meant by antibiotic? Write the name of four antibiotics.
  v.   Differentiate between endotoxin and exotoxin.
  vi.   Write briefly about antibodies.
  vii.   What is chemotherapeutic agent? Give examples.
  viii. How alcohol kill the microorganism.
  ix.   Discuss rate of death of microorganism.
  x.   Briefly write about human therapy.

Q.3   Write brief note on the following   4 x 5 = 20

  a.   Role of microorganism in mining.

  b.   Mode of action of formaline and heavy metals to control the microorganisms.

  c.   Complementary system

  d.   Drug resistance

Q.4   Write a detail note on types of hypersensitivity.   10

Roll No. in Fig. ....

Roll No. in Words. ....

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Signature of Supdt.:

PAPER: Applied Microbiology
Course Code: ZOOL-417   Part–I (Compulsory)

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

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 susceptibility of a microbe to antibiotic and other chemotherapeutic agent can be determined by
   A)   Paper disk plate method
   B)   Tube dilution method
   C)   Streaking method
   D)   Both A and B
   E)   None of these

ii. Which is most effective physical method to kill bacteria
   A)   Dry heat
   B)   Moist heat
   C)   Refrigeration
   D)   Both A & B
   E)   None of these

iii. The process in which dewatered sludge undergoes decomposition, usually within the thermophilic temperature range is termed as
   A)   Composting
   B)   Sludge digestion
   C)   Acid digestion
   D)   None of these

iv. During BIOFILM formation, specific adhesion is formed by means of:
   A)   Starch
   B)   Water channels
   C)   Lectins
   D)   Proteins
   E)   None of these

v. _____ technique improves the recovery of metals from an ore
   A)   Adsorption
   B)   Commensalism
   C)   Bioremediation
   D)   Bioleaching
   E)   None of these

vi. The term antibiosis was first defined by _____ in 1889
   A)   Vuillemin
   B)   Paul Ehrlich
   C)   Tyndall
   D)   None of these

P.T.O.