UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Second Semester – Fall 2024

Roll No. ....

Time: 3 Hrs.   Marks: 60

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions: (6x5=30)

i. Explain punishment and its effects during the process of learning.

ii. Explain the techniques to improve Memory.

iii. Briefly describe Spearman's Two Factor theory of intelligence.

iv. What is the difference conformity and obedience?

v. Explain the Gestalt Laws of Perceptual organization.

vi. Write a note on Gestalt school of Psychology.

Q.2. Answer the following questions: (3x10=30)

i. Explain the principles of Classical Conditioning.

ii. What are the factors that can affect motivation?

iii. Explain Thurston's seven factor theory of Intelligence.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: **(6x5=30)**

1. Write any two types of clinical interview

2. Differentiate growth and development.

3. Define id, ego and super ego.

4. What is malingering in forensic psychology?

5. What is the difference between psychologist and psychiatrist?

6. Define constructive approach in educational psychology?

Q.2.   Answer the following questions.   **(3x10=30)**

1. Define developmental psychology. What is the scope of developmental psychology?

2. Discuss psychological assessment in detail.

3. Discuss Sigmund Freud theory in detail.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

سوال نمبر۱:   مندرجہ ذیل سوالات کے مختصر جوابات دیجیے۔   (6x5=30)

۱۔ اعراب تقدیری سے کیا مراد ہے، مثالوں کے ساتھ تحریر کریں۔

۲۔ ضمیر سے مراد کیا ہے نیز اس کی اقسام تحریر کریں۔

۳۔ اسم معرب کی تعریف اور مثالیں تحریر کریں۔

۴۔ اسم معرفہ اور اسم نکرہ سے کیا مراد ہے، مثالوں کے ساتھ وضاحت کریں۔

۵۔ اسم منقوص کی تعریف کریں اور دو مثالیں تحریر کریں۔

۶۔ مشار اور مشار الیہ سے کیا مراد ہے؟ نیز مثالوں کے ساتھ وضاحت کریں۔

سوال نمبر۲:   مندرجہ ذیل سوالات کے تفصیلی جوابات تحریر کریں۔   (3x10=30)

(۱)   درج ذیل عبارت کا اردو ترجمہ کریں۔

وكانَ عادٌ لايستعملون عقُولهم إلا في الأكل والشربِ واللهو واللَّعب وبناء البيوت. وقد فسدتْ عقولهم لأنَّهم لا يستعملونها في الدين وكان عادٌ عقلاءَ في الدنيا أغنيَا في الدّين يعبدونَ الحجارةَ ولا يعقلون، فأرادَ اللهُ أن يرسلَ إليهم رسولاً يهديهم.

(۲)   درج ذیل جملوں کا عربی میں ترجمہ کریں

۱۔ وہ کل لاہور جانے والا تھا۔

۲۔ یہ کتاب بہت ہی مفید اور آسان ہے۔

۳۔ بے شک اللہ بخشنے والا مہربان ہے۔

۴۔ کیا تم نے قرآن نہیں پڑھا۔

۵۔ میرا بھائی مالدار ہے۔

(۳)   درج ذیل جملوں پر اعراب لگائیں۔

1- متى تأكلون الغداءَ؟

2- كان اللهُ عزيزا حكيما.

3- أمرت أن اعبد اللهِ.

4- هؤلاء البنات ذاهبات إلى لاهور.

5- هل عندك مفتاح هذا البيت.

UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Second Semester – Fall 2024

Roll No. ....

Paper: Introduction to Business Administration
Course Code: BADMIN-111

Time: 3 Hrs.   Marks: 60

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   **(6x5=30)**

1. Define partnership
2. What is public limited company?
3. Define business risk
4. Entrepreneurship
5. Centralize VS Decentralize Purchasing
6. Apprenticeship

Q.2.   Answer the following questions.   **(3x10=30)**

1. Discuss in detail the phases involved in formation of a joint stock company
2. Discuss in details the various kinds of shares.
3. What are various financial institutions? Differentiate between long term and short-term financing.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: **(6x5=30)**

I.   Maslow's hierarchy of needs

II.   Importance of motivation in leadership

III.   First step in the staffing process

IV.   List the key steps in the decision-making process.

V.   Emotional intelligence contributes to effective leadership.

VI.   Organizing as a managerial function.

Answer the following questions: **(3x10=30)**

Q.No.2: Discuss the key roles and responsibilities of a manager at different levels of an organization.

Q.No.3: What is decision-making? Explain the steps involved in the decision-making process with examples.

Q.No.4: Discuss the different types of planning (strategic, tactical, operational, contingency) and their applications.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (10x3=30)

  i.   List the main users of financial information.
  ii.   Define income statement. Why is it prepared?
  iii. What is meant by Realization principle in accounting?
  iv.   Define Journal. Why is it called First/prime Books of Entry?
  v.   Define "posting" in accounting.
  vi.   Why are nominal accounts excluded from the balance sheet?
  vii. What is the significance of the asset turnover ratio?
  viii. Differentiate between accrual and cash basis of accounting.
  ix.   What is a matching principle?
  x.   Enlist the financial statements?

Answer the following questions: (3x10=30)

Question No. 02

Muzammil opened a medical services business on June 1, 2024. On June 30, the following account balances were showing: Cash Rs. 72,000, Accounts Receivable Rs. 13,600, Supplies Rs. 4,800, Office Equipment Rs.48,000, Accounts Payable Rs.28,800, and Muzammil's Capital Rs.109,600. During July the following transactions occurred.

  (a) Paid Rs. 23,200 cash on accounts payable.
  (b) Paid rent of building for the month of July Rs. 7,200, and marketing expense Rs. 2,400.
  (c) Received Rs. 5,600 of accounts receivable.
  (d) Performed services of Rs. 64,000, of which Rs. 30,000 is received in cash and the balance is due in August.
  (e) Withdrew Rs. 8,000 cash for personal use.
  (f) Obtain loan Rs. 100,000 from HBL Bank on a note payable.
  (g) Purchased additional supplies for Rs. 33,600, paying Rs. 3,600 in cash and the balance on account.
  (h) Incurred advertising expense for month on account Rs. 9,750.
  (i) Paid salaries Rs. 22,000 for the month of July.

Required: Prepare an accounting equation beginning with June 30 balances.

Question No. 03

The ledger of Afzaal Rental Agency on March 31,2024 includes the following selected accounts before adjusting entries have been prepared.

Account Title	Debit (Rs.)	Credit (Rs.)
Prepaid Insurance	36,000	
Supplies	28,000	
Equipment	250,000	
Accumulated Depreciation (Equipment)		84,000
Notes Payable		200,000
Unearned Rent Revenue		99,000
Rent Revenue		600,000
Interest Expense	0	
Wages Expense	140,000	

An analysis of the accounts shows the following adjustments.

    (a) The equipment depreciates Rs. 4, 000 per month.
    (b) One-third of the unearned rent revenue was earned during the quarter.
    (c) Interest of Rs. 5, 000 is accrued on the notes payable.
    (d) Supplies on hand total Rs. 7, 000.
    (e) Insurance expires at the rate of Rs. 2, 000 per month.

Required: Prepare the adjusting entries at March 31,2024 assuming that adjusting entries are made quarterly. Additional accounts are: Depreciation Expense, Insurance Expense, Interest Payable, and Supplies Expense.

Question No. 04

The data provided below is related to Punjab Co. This information will be used for further analysis and calculation of various financial ratios. Below is a summary of the key financial figures:

Sales	Rs. 750,000	Interest expenses	Rs. 6,000
Purchases	Rs. 483,375	Paid-up capital (30,000 shares)	Rs. 300,000
Opening stock	Rs. 114,375	Long-term borrowing	Rs. 150,000
Closing stock	Rs. 147,750	Retained earnings	Rs. 135,000
Selling Expenses	Rs. 33,000	Current liabilities	Rs. 75,000
Administrative expenses	Rs. 147,000	Fixed assets	Rs. 435,000
Other income	Rs. 18,000	Current assets	Rs. 225,000

Required: You are required to calculate:

    1. Gross profit ratio
    2. Operating ratio
    3. Net profit ratio
    4. Return on investment
    5. Return on equity

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions   (6x5=30)

i   Define psychology.

ii   Describe bipolar disorder .

iii   Define Cognitive Learning.

iv   Explain types of thinking.

v   Define motivation.

vi   define man study himself .

Q.2.   Answer the following questions   (3x10=30)

1.   Discuss communication and process in detail .

2.   write a detailed note on structure of Neuron.

3.   Explain mental health and therapy .

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (6x5=30)

I: What are homologous chromosomes? Differentiate between metaphase-I and metaphase-II chromosomes with the help of a suitable diagram?

II: Differentiate between DNA and RNA?

III: How does a bacterial cell differ from an animal cell?

IV: What is nucleoside and nucleotide? Differentiate between cytosine and cytidine with the help of structural formulae?

V: How do algae differ from fungi?

VI: What are observable inheritance pattern? Give at least two examples of observable inheritance pattern?

Q.2.   Answer the following questions.   (3x10=30)

1.   What are vertebrates? Describe various classes of vertebrates with examples?

2.   What is genetic engineering? Describe functions of various tools of genetic engineering?

3.   Write a note on the following

   A: Viruses   B: Energy Metabolism

UNIVERSITY OF THE PUNJAB
B.S. 4 Years Program / Second Semester – Fall 2024

Roll No. ....

Paper: Plant Taxonomy, Anatomy and Development
Course Code: BOT-103A

Time: 3 Hrs.   Marks: 60

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (15x2=30)

1. What is Plant Taxonomy? Give its significance.
2. From which family *Capsella bursa-pastoris* L. belongs?
3. What is artificial system of classification?
4. Define Nomenclature. Who introduced Binomial Nomenclature?
5. How would you define Phylogenetics? Give its importance.
6. What is a flower? Draw and label its different parts.
7. Define epigynous and hypogynous conditions of a flower.
8. Write down the chemical composition of a cell wall.
9. Differentiate b/w simple and complex tissues
10. What are trichomes? Give their various types.
11. Define apical meristem.
12. What is Secondary growth? Give its importance
13. Draw neat and clean labelled diagram of internal structure of dicot stem.
14. Differentiate b/w Microgametophyte and Megagametophyte
15. Define endospore. Give its Function.

Q.2.   Answer the following questions: (3x10=30)

1. What is Micro-megasporogenesis? Explain this process in *Capsella bursa-pastoris* L.
2. Explain Takhtajan System of Classification
3. What are Simple Tissues? Explain simple tissues in detail.

UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Second Semester – Fall 2024

Paper: Botany-II (Plant Systematic Anatomy & Development Theory)
Course Code: BOT-103

Roll No. ....

Time: 3 Hrs.   Marks: 60

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (15x2=30)

1. Define taxonomy? What are the different types of taxonomic keys?
2. What is megasporogenesis?
3. What are different types of seeds?
4. What are the characteristics of sclerenchyma tissue?
5. Compare complex tissues of gymnosperms and angiosperms?
6. What are the main functions of the cell wall in plants?
7. Differentiate between Epidermal appendages and stomata?
8. How does Brassicaceae family contribute to agriculture?
9. What is the importance of etymology in nomenclature?
10. What are the function of vascular cambium in plant growth and development?
11. What are the main characteristics of monocot plants?
12. Differentiate between microsporophyte and microgametophyte of *Capsella bursa-pastoris* L.
13. What is the use of *Capsella bursa-pastoris* L.?
14. How do you identify monocot or dicot plants in a field without dissection?
15. Draw neat and clean labelled diagram of internal structure of Monocot root?

Q.2.   Answer the following questions: (3x10=30)

1. Define nomenclature? Write down different nomenclatural types.
2. Define complex tissues? Discuss their types in detail?
3. Discuss development of micro & megasporogenesis, micro & megagametophyte in *Capsella bursa-pastoris* L.?

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: **(15x2=30)**

1. Define Plant systematics. Write its significance.
2. Why scientific names are more useful than common names?
3. Briefly describe endosperm formation in *Capsella bursa-pastoris* L.?
4. Define meristematic tissue. Differentiate intercalary and apical meristem.
5. What is megasporogenesis?
6. How primary and secondary growth takes place in plants?
7. Draw neat and clean labelled diagram of internal structure of root?
8. What is the difference between sclerenchyma and collenchyma?
9. What type of simple tissues are found in plants?
10. What is the economic importance of family Liliaceae.
11. Differentiate between apocarpous and syncarpous condition?
12. Write the characteristic features of Rosaceae family?
13. What are the epidermal appendages in cell wall of plants?
14. Differentiate between monocot and dicot root?
15. Briefly describe development of primary roots in plants?

Q.2.   Answer the following questions: **(3x10=30)**

1.   Discuss in detail about artificial system of classification?
2.   Write salient features of family Solanaceae along with floral formula and floral diagram? Also give its economic importance.
3.   Discuss development megasporogenesis and Micrgametophyte in *Capsella bursa-pastoris* L.?

UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Second Semester – Fall 2024

Paper: Arts & Humanities - II Study of Arabic Language
Course Code: BSAR-102

Roll No. ....

Time: 3 Hrs.   Marks: 60

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

سوال نمبر1:   نیچے دیے گئے اجزاء کے مختصر جوابات لکھیے۔   (6x5=30)

(1) اذكر/اذكري علامات الفعل   (علامات فعل تحریر کریں)۔

(2) ما الفرق بين التاء المربوطة والمبسوطة   (تاء مربوطہ اور تاء مبسوطہ میں کیا فرق ہے؟ مثال دے کر واضح کریں)۔

(3) اكتب/اكتبي ضمائر الرفع المنفصلة.   (ضمائر مرفوع منفصلہ لکھیں)

(4) عرّفوا المركب التوصيفي وأركانه مع ذكر الأمثلة.(مرکب توصیفی کی تعریف اور ارکان ذکر کریں اور مثال سے وضاحت کریں)

(5) اكتب/اكتبي أسماء خمس دول عربية من قارة أفريقيا مع ذكر العملات (براعظم افریقہ کے پانچ عرب ممالک اور ان کی کرنسیاں لکھیں)

(6) عرّف/عرّفي بالمركب الإضافي مع ذكر المثال (مرکب اضافی کی تعریف کریں اور مثالوں سے واضح کریں)

ذیل کے سوالات کے مطلوبہ جوابات لکھیے۔   (3x10=30)

سوال نمبر2:   ترجم/ ترجمي العبارة الآتية إلى اللغة الأردية أو الإنجليزية. واستخرج من العبارة الأمور التالية: 1:فعلًا ماضيًا ،2: فعلًا مضارعًا، 3: مركبا إضافيًا 4. ضميرمنصوبًا ،5: معرفًا باللام (درج ذیل عبارت کا اردو یا انگلش میں ترجمہ کریں، اور عبارت سے درج ذیل اشیاء اخذ کریں۔ 1: فعل ماضی،2: فعل مضارع،3: مرکب اضافی،4. ضمیر منصوب،5: معرف باللام)۔

"فغضبَ الشابُ على هذا الشِركِ، وعزَّم أن يقطعَ الشجرةَ، فأخذ فأسَه، وذهبَ إلى تلك الشجرةِ ليقطعها، وفي الطريق ظهَرَ أمامه الشيطانُ، وقال له: أيُّها الشابُ، إلى أين أنتَ ذاهبٌ؟".

سوال نمبر3:   ترجم/ترجمي الحديث الشريف إلى اللغة الأردية أو الإنجليزية.   (درج ذیل حدیث شریف کا اردو یا انگلش میں ترجمہ کریں)۔

قال رسول الله ﷺ: اتَّقِ المحارمَ تكنْ أعبدَ الناسِ، وارضَ بما قسم الله لك تكنْ أغنى الناس، وأحسِن إلى جارك تكنْ مؤمنًا، وأحِبَّ للناس ما تحبُّ لنفسك تكنْ مسلِمًا، ولا تُكثِر الضحك؛ فإنَّ كثرة الضحك تميتُ القلب.

سوال نمبر4:   اكتب/اكتبي صياغة فعل المضارع المعروف مع تصريفه من مادة"كَتَبَ". (فعل مضارع معروف بنانے کا قاعدہ ذکر کریں اور "کَتَبَ" کے مادہ سے اس کی گردان لکھیں)۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q 1.   Answer the following short questions.   (6x5=30)

سوال نمبر1:   درج ذیل سوالوں کے مختصر جواب دیں۔

i.   Draw a comparison between the policy of Pakistani and International news agencies.

i.   بین الا قوامی اور پاکستان خبر رسانی ایجنسی میں فرق بیان کریں۔

ii.   Discuss the organizational structure of Reuters.

ii.   رائیٹرز کی تنظیمی ساخت بیان کریں۔

iii.   Critically evaluate the role of Al-Jazeera.

iii.   الجزیرہ کے کردار کا تنقیدی جائزہ لیں۔

iv.   Name any Four news agencies of Pakistan with their dates.

iv.   کوئی سی چار پاکستانی خبر رساں ایجنسیوں کے نام مع تاریخ لکھیں۔

v.   Draw a comparison between the policy of BBC and CNN.

v.   بی بی سی اور سی این این کی پالیسی کا موازنہ کریں۔

vi.   Critically evaluate the role of DPA as a source of news.

vi.   DPA کی خبر رسانی پر تنقیدی جائزہ لیں۔

Q 2.   Answer the following Questions.

سوال نمبر2:   مندرجہ ذیل سوالوں کے جواب دیں۔

i.   What is meant by media conglomerates? Discuss any two International media giants in detail.   **(15)**

i.   Media Conglomerates سے کیا مراد ہے؟ کوئی سے دو بین الا قوامی Media giants کو تحریر کریں۔

ii.   Write brief notes on any THREE of the following: **(3x5=15)**

ii.   مندرجہ ذیل میں سے کسی تین پر مختصر نوٹ لکھیں۔

    a) Al-Jazeera
    b) News Corporation
    c) VOA (Voice of America)
    d) Associated Press (AP)

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q 1. Answer the following short questions. (6x5=30)

i. Write down 7C's for effective communication.
ii. Write down barriers of Communication.
iii. Define role of mass media in agenda setting.
iv. Analyze the role of print media in shaping public opinion.
v. Define SMCR model of Communication.
vi. Explain citizen journalism with example.

Q 2. Answer the following questions. (3x10=30)

i. Write a note on process of communication. Explain each step in detail.
ii. Discuss the nature and functions of mass communication with reference to information, education and entertainment.
iii. Explain types of communication. Give examples to elaborate the concept.

UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Second Semester – Fall 2024

Paper: Cross Cultural Communication and Translation Skill
Course Code: BSU-106

Roll No. ....

Time: 3 Hrs.   Marks: 60

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: **(6x5=30)**

  i.   What is formal email? How is it different from informal email?
  ii.   Enlist types of translation.
  iii. What is glossing? Explain its process.
  iv.   Write down major story telling techniques.
  v.   How will you write and revise the draft?
  vi.   What are the major types of folk lore?

Q.2.   Answer the following questions: **(3x10=30)**

  i.   What are the major online platforms for vocabulary building?
  ii.   What is collaborative translation? Write a note on its various forms.
  iii. What is class presentation of visuals? Describe the plan for the class presentation in detail.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (15x2=30)

1. What do you mean by Industrial Revolution?

2. What is direct impact of over-reliance on fossil fuels on the species?

3. What are GCMs ?

4. Define Energy. What are its units?

5. What do you know about COP29 ?

6. What are Greenhouse Gases? Name any Two.

7. What is Photoelectric Effect?

8. What do you mean by Renewable Vs Non-renewable Energy?

9. What is Germ Theory of Disease?

10. What is AIDS?

11. Science ha always been Inseparable from Politics. Comments.

12. What is Scientific Funding?

13. Define Nanotechnology .

14. What is Gene Therapy?

15. Is there any Ethical Issue related to Scientific Development?

Q.2.   Answer the following questions: (3x10=30)

1. What are Causes and Consequences of Anthropogenic Climate Change?

2. Explain the Working Principles of Windmills OR Hydropower.

3. Discuss the Phenomenon of Antibiotic Resistance.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions: (5x6=30)

1. Write down characteristics of civil bureaucracy.
2. What is Green Revolution? Also write down impacts of Green Revolution on society.
3. Describe the relationship between Landed Power and Countryside.
4. What is Youth Bulge? Write down the causes of high Youth Bulge in Pakistan.
5. Define any two impact of digital technologies?

Q.2. Answer the following questions: (3x10=30)

a. What is urbanization? Write its causes and effects also discuss the inequalities with urbanisation.

b. Define colonialism. Explain any five elements which considered as negative impacts associated with colonial legacies.

c. Write a detail note on gender and power.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Solve the following: **(15x2=30)**

i.   Find the of y, if $y = 4x - 3$ at $x = -2$

ii.   Express interval $(7, 14.5]$ in Set Builder Notation.

iii.   Solve $|2x + 1| < 1$ *show the solution on Number line.*

iv.   *17 is a positive integer and 7 is rational number. Find the truth values of this conjunction.*

v.   *Write the Converse, Inverse and Contrapositive of the the given conditional if* $\sim q \rightarrow p$.

vi.   *Find the Value of* t *if* $\dfrac{-3}{5} = \dfrac{t}{1.5}$.

vii.   Define disjunction.

viii.   In Ali's class there are 120 students (both girls and boys). The Ratio of Boys to Girls is 7:5. Find the numbers of girls in his class.

ix.   Find the $x - intercept$ of $y = 2x - 36$

x.   Determine whether the given point (4,-1) is solution of $\begin{cases} x + 2y = 2 \\ x - 2y = 6 \end{cases}$ or Not.

xi.   Jameel bought 12 Apples for 60 rupees. How much would 4 Apples cost.

xii.   Fahad ran 10 miles in 80 minutes. At that rate how far would he run in 2.5 hours.

xiii.   In 1990 Shakeel was 145 cm tall. He grew to be 176 cm by the year 2000. What was Shakeel's rate of Growth over this period in his life?

xiv.   Write a Linear function in which coefficient is -2 *and constant is* 5.

xv.   Solve $-4x - 3 \geq -3x + 6$
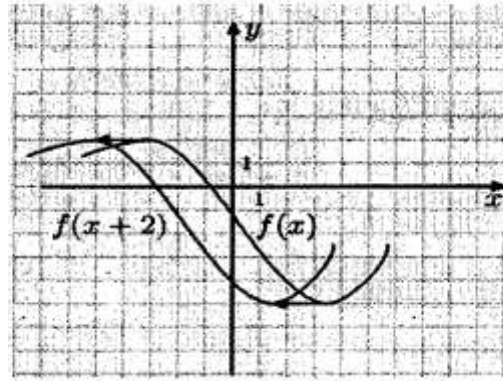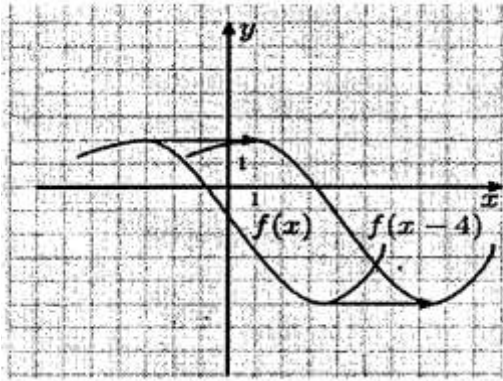
   Answer the following questions: **(3x10=30)**

Q#2) (a) The 2018 census found a Pakistan population of about 329 million, with an estimated incline rate of 0.8% per year. Write an equation for the Pakistan population that assumes exponential growth at this rate. Use the equation to predict the Pakistan population in 2100.

(b) Solve the System of linear Equations $\begin{cases} x + 2y = 10 \\ -4x + 2y = 45 \end{cases}$

Q#3) (a) Discuss the Shift in these graph

(b) Find slope, x and y intercept of linear function $y = \frac{-1}{5}x + 4$.

Q#4(a) Draw the graph of $y = 2x + 1$ for the value of x from-3 to 3..

(b) Write the Truth table for $(p \rightarrow q) \rightarrow \sim(q \rightarrow r)$.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

سوال نمبر1:   درج ذیل سوالوں کے مختصر جواب دیں۔   (6x5=30)

1۔ نرمل ورما کے افسانے "پرندے" کے کوئی سے دو کرداروں پر نوٹ لکھیے۔

2۔ افسانے "اوور کوٹ" کے مرکزی خیال کا احاطہ کریں۔

3۔ "چاندی کی ڈوری" کے بیان کنندہ کا تعارف کروائیے۔

4۔ افسانے "ہاتمی کی پونچھ" کا مرکزی کردار ہاتمی کی پونچھ کیسے حاصل کرتا ہے۔ اپنے الفاظ میں بیان کیجیے۔

5۔ افسانے "دبدحا" کے بھوت کے کردار پر روشنی ڈالیے۔

6۔ "کالی والا" باپ بیٹی کی آفاقی محبت کی علامت ہے۔ اختصار سے بیان کریں۔

سوال نمبر2:   مندرجہ ذیل سوالوں کے جواب دیں۔   (3x10=30)

1۔ جے جی بیلارڈ کے افسانے "وقت کا باغ" کا تنقیدی جائزہ لیجیے۔

2۔ "ہاتمی کی پونچھ" کا فکری و فنی جائزہ لیجیے۔

3۔ "چاند کی ڈوری" ادھوری محبتوں کی کہانی ہے دلائل سے ثابت کریں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Solve the following   **(15x2=30)**

i.   Solve the quadratic equation $3x^2 - 7x - 12 = 0$.

ii.   If $A = \begin{bmatrix} -3 & 6 \\ -2 & 2 \end{bmatrix}$, then compute $adj\ A$.

iii.   What is the domain of $f(x) = x^2$ and $g(x) = \sqrt{x}$.

iv.   If $125 - 2P = -45 + 8P$, then find the value of P.

v.   Find the limit for the function $\lim\limits_{x \to 4} \dfrac{3x^2 - 5x}{x+6}$.

vi.   If $TR = 75Q - 4Q^2$, them find $MR = \dfrac{dTR}{dQ}$.

vii.   Find A^{-1} if $A = \begin{bmatrix} 2 & -1 \\ 3 & 5 \end{bmatrix}$.

viii.   Write the quadratic formula.

ix.   What is the derivative of $3x^2 - 14x + 5$ with respect to x.

x.   Solve the linear equation for y, if $6y - 5 = 8y - 10$.

xi.   Find $f'(x)$, if $f(x) = -9x^{-4}$.

xii.   Given $A = \begin{bmatrix} 7 & -1 \\ 6 & 9 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 4 \\ 3 & -2 \end{bmatrix}$, find $4A + 3B$.

xiii.   If $B = \begin{bmatrix} 9 & 5 \\ -1 & 1 \end{bmatrix}$ then find $\det B$.

xiv.   Calculate the inverse of $A = \begin{bmatrix} 3 & -1 \\ 0 & 5 \end{bmatrix}$.

xv.   If $f(x) = 4x^2(x + 7)$ then find $f'(x)$ using product rule.

Q.2.   Solve the following   **(5x6=30)**

1.   Find $\dfrac{dy}{dx}$ if $y = (3x - 4)\left(\dfrac{5x+1}{2x-7}\right)$.

2.   Solve the following system of linear equations by Cramer's rule
$$6x_1 + 5x_2 = 49$$
$$3x_1 + 4x_2 = 32$$

3.   . If $f(x) = x^3(4x^2 - 3x)$, then find $f'(x), f''(x)$ and $f'''(x)$.

4.   Find the inverse for $A = \begin{bmatrix} 4 & 1 & -5 \\ -2 & 3 & 1 \\ 3 & -1 & 4 \end{bmatrix}$

5.   Find the marginal revenue MR function for each of the following demand functions:

i. $Q = 24 - 4P$,

ii. $Q = 2P + 44$.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   **Answer the following short questions:**   **(6x5=30)**

1. Is the "divides" relation on the set of positive integers symmetric? Is it antisymmetric?

2. How many positive integers not exceeding 100 are divisible either by 4 or by 6?

3. Give a big-O estimate of the function $f(n) = n \, log(n^2 + 1) + n^2 log \, n$.

4. A group of 40 students were asked about their favorite subjects. 25 like math, 20 like science, and 12 like both. How many students like neither math nor science?

5. An office building contains 27 floors and has 37 offices on each floor. How many offices are in the building?

6. Give an example of two uncountable sets A and B such that $A - B$ is
   a. finite.
   b. countably infinite.
   c. uncountable.

Answer the following questions: **(3x10=30)**

Question 2.   A bowl contains 10 red balls and 10 blue balls. A woman selects balls at random without looking at them.
a) How many balls must she select to be sure of having at least three balls of the same color?
b) How many balls must she select to be sure of having at least three blue balls?

Question 3.   Let $P(x)$, $Q(x)$, $R(x)$, and $S(x)$ be the statements "x is a duck," "x is one of my poultry," "x is an officer," and "x is willing to waltz," respectively. Express each of these statements using quantifiers; logical connectives; and $P(x)$, $Q(x)$, $R(x)$, and $S(x)$.

   a) No ducks are willing to waltz.
   b) No officers ever decline to waltz.
   c) All my poultry are ducks.
   d) My poultry are not officers.

Question 4.   Suppose that A is the set of sophomores at your school and B is the set of students in discrete mathematics at your school. Express each of these sets in terms of A and B.
   a) The set of sophomores taking discrete mathematics in your school
   b) The set of sophomores at your school who are not taking discrete mathematics
   c) The set of students at your school who either are sophomores or are taking discrete mathematics
   d) The set of students at your school who either are not sophomores or are not taking discrete mathematics

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (5x6=30)

Program 1

```cpp
int main()
{
    int x = 30;
    cout << --x * 3 << ", ";
    cout << x++;

    return EXIT_SUCCESS;
}
```

Program 2

```cpp
int main()
{
    int status = 50;
    if (status > 50 && status < 100)
        cout << "Pass";
    else
        cout << "Fail";

    return EXIT_SUCCESS;
}
```

Program 3

```cpp
int main()
{
    int y = 3;
    switch (y)
    {
        case 1:
            cout << "one" << endl;
            break;
        case 2:
            cout << "two" << endl;
            break;
        case 3:
            cout << "three" << endl;
        default:
            cout << "four";
    }

    return EXIT_SUCCESS;
}
```

Program 4

```cpp
void foo(int* x, int y)
{
    (*x) = (*x) + (*x);
    y = y - y;
}

int main()
{
    int a = 4, b = 7;
    foo(&a, b);
    cout << a << " " << b << endl;

    return EXIT_SUCCESS;
}
```

Program 5

```
int main()
{
        int X[] = { 15, 30, 35, 60, 120 };
        int* p = X;

        while (*p < 120)
        {
                if (*p % 4 != 0)
                        *p = *p + 2;
                else
                        *p = *p + 1;

                p++;
        }

        for (int I = 4; I >= 1; I--)
        {
                cout << X[I] << "*";

                if (I % 4 == 0)
                        cout << endl;
        }

        cout << X[0] * 4 << endl;

        return EXIT_SUCCESS;
}
```

Q.2.   Answer the following questions: (3x10=30)

1) Write a program that calculates the **area of an annulus**. The program should take the **outer radius (R)** and the **inner radius (r)** as input from the user and display the calculated area.

The formula for the **area of an annulus** is:

$$Area = \pi(R^2 - r^2)$$

where **R** is the **outer radius**, **r** is the **inner radius**, and π **(pi)** is approximately **3.14159**.

2) Write a function named **numberToSpeedCategory** that takes an integer representing the **speed of a vehicle** (in km/h) and returns the corresponding **speed category**: "Slow" (0-20 km/h), "Moderate" (21-60 km/h), or "Fast" (61+ km/h). If the input is negative, the function should return "Invalid speed".

For example:

- For input **10**, the function should return **"Slow"**.
- For input **40**, the function should return **"moderate"**.
- For input **-5**, the function should return **"Invalid speed"**.

3) Write a function named **mirrorBinary** that takes the following arguments:

1. An **array of binary** values (0s and 1s).
2. An **integer** representing the number of values in the array.

The function must **reverse the order** of the values in the array (without creating a new array).

For example, if the array passed to the function contains the following values:

Index:	0	1	2	3	4
Values:	0	1	0	0	1

After the function executes, the array should be modified to look like this:

Index:	0	1	2	3	4
Values:	1	0	0	1	0

The function **should not return any value**.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: **(15x2=30)**

(i)   How CFT is superior to VBT?

(ii)   How radiations can be measured?

(iii)   What are the raw materials of soap industry?

(iv)   How colour is imparted to Glass during its manufacturing process.

(v)   What is soda ash?

(vi)   What is carbon dating?

(vii)   What are the ores of copper from which it is extracted?

(viii) What is the shape of SF_4 according to VSEPR theory?

(ix)   What is the example of linkage isomerism?

(x)   What are the applications of coordination compounds in industry?

(xi)   What are the biological effects of nuclear radiations?

(xii)   What are chelates?

(xiii) Explain diagonal relationship of Li and Mg.

(xiv) O_2 molecule is paramagnetic in nature. Justify the statement.

(xv)   What are the main defects of VESPR theory?

Q.2.   Answer the following questions: **(3x10=30)**

(a) Compare the structures of AB6 type of complexes on the basis of VBT, MOT

(b) What are the applications of nuclear reactions in chemistry and industry?

(c) What are the types of isomerism. Explain with suitable examples of metal complexes.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. **Answer the following short questions:**   **(6x5=30)**

a) Define the following.
- i). Inductive Effect   ii). Resonance Effect   iii). Tautomerism
- iv). Hydrogen Bonding   v). Orbital Hybridization.

b) Why Corey-House Method is more suitable as compared to Wurtz reaction for the synthesis of alkane. Explain with examples.

c) Draw the structures of following compounds and labeled them with IUPAC systematic rules.
- i). 3-cyclopentylhexane   ii). 2-cyclobutyl-3-methylpentane
- iii). Isopropylcyclodecane   iv). 2-methylbicyclo [3.2.0] heptanes
- v). 8-methylbicyclo [3.2.1] octane

d) Outline all steps involved in the synthesis of the following compounds from benzene or toluene, assuming that the ortho / para mixtures are separable.
- i). n-Butylbenzene   ii). m-Nitrotoluene
- iii). p- Bromonitrobenzene   iv). p- Bromobenzoic acid.
- v). 1,2-Dibromo-4-nitrobenzene

e) How will you prepare each of the following compounds from benzene ?
- i). o-Nitroaniline   ii). m-Nitroaniline   iii). p- Nitroaniline

f) Write the structural formulas and the IUPAC names of each of the following.
- i. Six isomeric pentenes (C_5H_{10}).   ii). Seven isomeric hexynes (C_6H_{10}).

Q.2. **Answer the following questions:**   **(2x15=30)**

I.

(1) How would you synthesize following using benzene. Write complete mechanism of each step involved.   **9**

I) m-bromobenzene sulphonic acid   ii) o-bromonitrobenzene   iii) meta cresol

(2) Describe one method each for synthesis of pyrrole and pyridine?   **6**

II.

How will you synthesize the following compounds?

- **a.** $CH_3CH_2CH_2OH + H_2SO_4 + 130°C \rightarrow$?
- **b.** $CH_3CH_2CH_2OH + H_2SO_4 + HBr \rightarrow$?
- **c.** Diethyl ether + Na $\rightarrow$?
- **d.** $(CH_3)_3CCH_2OH \rightarrow CH_3CH_2CCl(CH_3)_2$
- **e.** $CH_3CH_2CH_2OH \rightarrow HOOCCH(CH_3)CH_2COOH$
- **f.** $CH_3(CH_2)_4COOH \rightarrow CH_3(CH_2)_4Br$
- **g.** Toluene $\rightarrow$ p-Bromobenzyl chloride

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   **Answer the following short questions:**   **(15x2=30)**
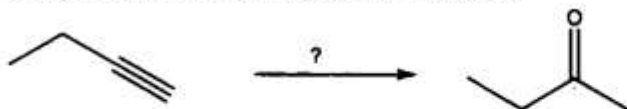
Q.2.   **Answer the following questions:**   **(3x10=30)**

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED
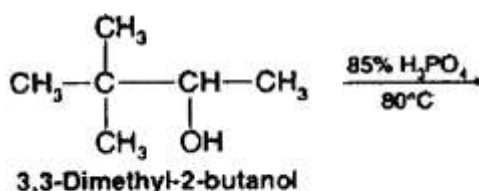
Q.1.   Answer the following short questions: (15x2=30)

i.   Cyclo-octatetraene prevents resonance.

ii.   Acetic acid is ten times less acidic than formic acid and 100 times less acidic than chloroacetic acid.

iii.   N, N-dimethylaniline is less basic then 2,6,N,N-tetramethylaniline.

iv.   O-nitrophenol is less soluble in water as compared to p-nitrophenol.

v.   Differentiate b/w nuleophilicity and basicity with examples.

vi.   Pyrrole is a weaker base than pyridine?

vii.   Acetoacetic ester gives ferric chloride test which is typical test for phenol.

viii.   Phenanthrene is more stable than Anthracene.

ix.   Differentiate between negative and positive resonsnce effect.

x.   Complete the following given reaction.

xi.   Differentiate between Jones reagent and PCC?

xii.   Nitration of phenol is 10^3 times faster than benzene?

xiii.   Explain bromine water test with mechanism?

xiv.   How can you distinguish between ethanol, isopropanol and tertiary butanol.

xv.   2,4,6 trinitrophenol is decomposed by sodium bicarbonate while simple phenol not.

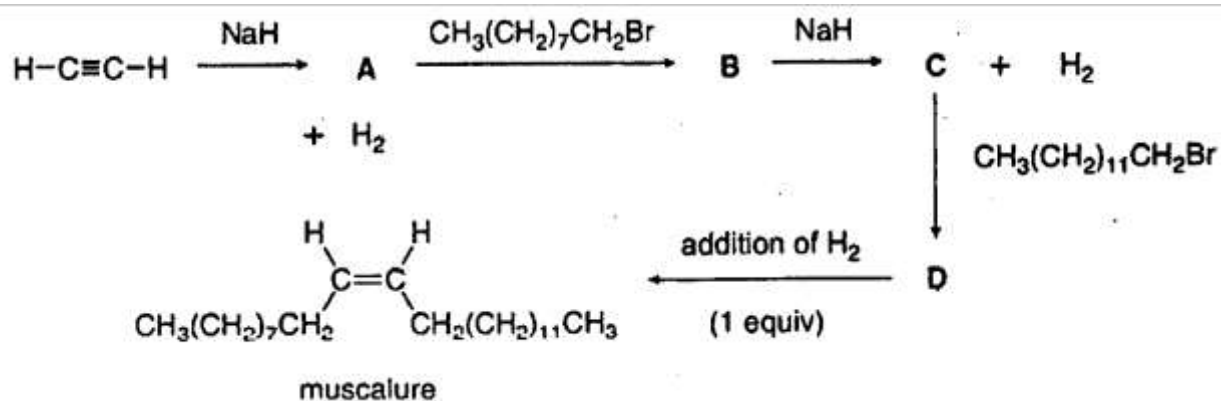Answer the following questions:

Q. 2. a) What is Reimer-Tiemann reaction explain with mechanism. (5)

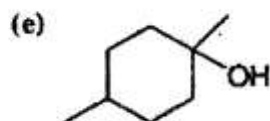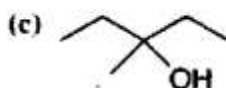b) Identify the major and minor products and explain the mechanism;(5)
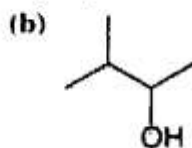

3,3-Dimethyl-2-butanol

Q.3. a) Write two synthetic routs to synthesize naphthalene. (5)

b) Draw all the hyper conjugating structures of tertiary carbocation.(5)

Q.4. a) Muscalure, the sex pheromone of the common housefly, can be prepared by a reaction sequence that uses two nucleophilic substitutions. Identify compounds A–D in the following synthesis of muscalure. (5)

$$H-C\equiv C-H \xrightarrow{\text{NaH}} A \xrightarrow{CH_3(CH_2)_7CH_2Br} B \xrightarrow{\text{NaH}} C \ + \ H_2$$

+ H_2

$CH_3(CH_2)_{11}CH_2Br$

$$\underset{CH_3(CH_2)_7CH_2}{\overset{H}{\diagdown}} C = C \underset{CH_2(CH_2)_{11}CH_3}{\overset{H}{\diagup}}$$

muscalure

addition of H_2

(1 equiv)

D

b) Give the products that would be formed when each of the following alcohols is subjected to acid-catalyzed dehydration. If more than one product would be formed, designate the alkene that would be the major product. (5)
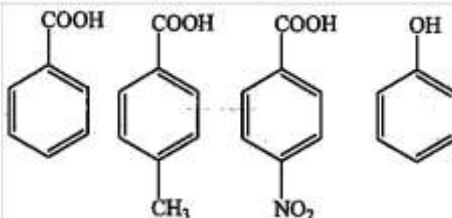
(a)   (b)   (c)   (d)   (e)

UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program : Second Semester – Fall 2024

Paper: Chemistry-III (Organic Chemistry)   Course Code: CHEM-201

Marks: 60

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (6x5=30)

I.   Arrange the following in increasing order of acidic strength.

II.   Draw structures of *m*-nitroanisole, 3-ethyl-2,2-dimethylpentane, 9-ethylphenanthrene, benzophenone, and quinolone.

III.   Write down the mechanism of Simmons-Smith reaction for preparing cyclopropane.

IV.   Arrange the following in increasing order of reactivity in electrophilic substitution reactions.

Toluene, Benzene, Nitrobenzene, Phenol

V.   How is acetylene prepared commercially from lime and coke?

VI.   What is Wolf-Kishner's reagent? Where is it used?

Answer the following questions.

Q. NO. 2: Write down the mechanism for the following reactions.   [2×5 = 10]

I.	Corey-House synthesis
II.	Hydroboration of propyne

Q. NO. 3:
(a) Convert ethene into;   (5)

I.	Ethyl alcohol
II.	Ethylene epoxide
III.	Ethane
IV.	Formaldehyde
V.	Ethylene glycol

(b) Differentiate among aromatic, anti-aromatic, and non-aromatic compounds with examples.   (5)

Q. NO. 4:
(a) Differentiate between the following pairs.   (6)

I.	Resonance and hyperconjugation
II.	Hydrogen bonding and tautomerism
III.	Localized and delocalized bonds

(b) Bring about the following conversions;   (4)

I.	Ethyl acetate into ethene
II.	Cyclopropane to *n*-propyl bromide

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   **Answer the following short questions:**   **(6x5=30)**

a) Who is considered the "Father of Computers," and why?

b) What is the function of the motherboard?

c) What is the Internet, and how does it function?

d) Define a computer network and its key components.

e) Define memory in computing and explain the difference between RAM and ROM.

f) Discuss the role of Charts in MS Excel. How can they help in data visualization?

Q.2.   **Answer the following questions:**   **(3x10=30)**

a) What are the advantages of SSDs over traditional HDDs?

b) Explain the basic features of MS Word.

c) List the major types of operating systems and their characteristics.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (10X3=30)

i.   Why is bank reconciliation prepared? What are the reasons of difference between bank statement balance and balance as per depositors' ledger?

ii.   What is meant by deposit in transit and outstanding cheques?

iii.   Define and differentiate between perpetual and periodic inventory system.

iv.   Define and differentiate between current and non-current assets. Give examples of both.

v.   What is cost principle in accounting?

vi.   Why are assets depreciated? Enlist methods of depreciation.

vii.   Define book value (carrying value) of assets?

viii.   Define amortization. Write down the journal entry of amortization.

ix.   Define contingent liability. How is it reported in balance sheet?

x.   What is provision for bad and doubtful debts is created?

Answer the following questions: (3X10=30)

Q. 2   On August 3, Star Construction purchased special-purpose equipment at a cost of $930,000 and paid freight charges for delivery costing $10,000 and installation cost of $60,000. The useful life of the equipment was estimated to be eight years, with a residual value of $50,000.

a) Compute the depreciation expense to be recognized each calendar year for financial reporting purposes under the straight-line depreciation method (half-year convention).

b) Compute the depreciation expense to be recognized each calendar year for financial reporting purposes under the 200 percent declining-balance method (half-year convention) with a switch to straight-line when it will maximize depreciation expense.

Q. 3   Fox Company purchased items of inventory as follows:
- May 3: 100 units @ $3.05
- May 10: 150 units @ $3.10
- May 15: 120 units @ $3.15

By the end of the month of May, Fox had sold 125 units.

Required: Compute the amount of ending inventory and cost of goods sold if the company uses;

a) the average-cost method of accounting for inventory

b) the first in first out method of accounting for inventory

Q. 4 Wilcox Mills is a manufacturer that makes all sales on 30-day credit terms. Annual sales are approximately $30,000,000. At the end of 2021, accounts receivable was presented in the company's balance sheet as follows:

Accounts receivables from clients	$ 3100,000
Less: Allowance for doubtful accounts	$ 80,000

During 2022, $165,000 of specific accounts receivable were written off as uncollectible. Of these accounts written off, receivables totaling $15,000 were subsequently collected. At the end of 2022, an aging of accounts receivable indicated a need for a $90,000 allowance to cover possible failure to collect the accounts currently outstanding.

Wilcox Mills makes adjusting entries for uncollectible accounts only at year-end.

Required:
a) Prepare the following general journal entries:
  i. One entry to summarize all accounts written off against the Allowance for Doubtful Accounts during 2022.
  ii. Entries to record the $15,000 in accounts receivable that were subsequently collected.
  iii. The adjusting entry required at December 31, 2022, to increase the Allowance for Doubtful Accounts to $90,000.
b) Notice that the Allowance for Doubtful Accounts was only $80,000 at the end of 2021, but uncollectible accounts during 2022 totaled $150,000 ($165,000 less the $15,000 reinstated). Do these relationships appear reasonable, or was the Allowance for Doubtful Accounts greatly understated at the end of 2021? Explain.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (6x5=30)

a) Define database design. Why is it important in the development of a database system?

b) What are the advantages of using a database system?

c) List at least five real-world applications of databases.

d) Differentiate between logical and physical database design. Provide examples to clarify the distinction.

e) Explain the concept of de-normalization. When and why is it used in database design?

f) List and explain three functions of a DBMS.

Q.2.   Answer the following questions: (3x10=30)

a) Discuss the steps of normalization: 1NF, 2NF, and 3NF on the following table. Invoice (Invoice_ID, Date, Customer_ID, Customer_Name, Total_Amount)

b) What is the role of a database administrator (DBA)? Discuss the key responsibilities of a DBA.

c) Develop an ERD for a school management system to manage Students, Teachers, Classes, Subjects, and Exams entities. Identify key attributes for each entity. Explain relationships between entities (e.g., one-to-many, many-to-many). Include constraints such as primary keys, foreign keys, and cardinalities.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   (6x5=30)

i.   What are mainframe computers?

ii.   Differentiate between Address BUS and Control BUS.

iii.   Define control printing jobs? Write the steps to adding a new printer.

iv.   Explain the features of word processor.

v.   What is formula? How can you apply formula in worksheet?

vi.   What is Slide? How to connect tables in slides?

Q.2.   Answer the following questions.   (3x10=30)

1.   What is Memory? Explain types of memory.

2.   What is Word Art in MS-Word? Explain features of MS-PowerPoint.

3.   What is Spread Sheet Software? Explain IF-else formula in MS-Excel.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q 1. **Answer the following short questions.** **(6x5=30)**

سوال نمبر1: درج ذیل سوالوں کے مختصر جواب دیں۔

I. Describe the primary objectives of Islamic education.

اسلامی نظام تعلیم کے بنیادی مقاصد بیان کریں۔

II. Cite the Qur'anic verses that highlight the significance of acquiring knowledge.

قرآن آیات کی روشنی میں حصول علم کی اہمیت بیان کریں۔

III. Mention Hadiths that emphasize the importance of pursuing knowledge.

احادیث نبوی ﷺ کی روشنی میں حصول علم کی اہمیت واضح کریں۔

IV. What were the key features of the education system during the era of the Holy Prophet (PBUH)?

دورِ نبوی ﷺ کے نظام تعلیم کی اہم خصوصیات تحریر کریں۔

V. Briefly describe the advancement of education in the era of righteous caliphate? Briefly explain.

دورِ خلافت نے تعلیم کی ترقی میں کیا کردار ادا کیا؟ مختصر وضاحت کریں۔

VI. Name two sources of knowledge in an Islamic perspective.

اسلامی نقطہ نظر سے علم کے دو ذرائع کے نام بتائیں۔

Q 2. **Answer the following Questions.** **(3x10=30)**

سوال نمبر2: مندرجہ ذیل سوالوں کے جواب دیں۔

I. Elaborate on the concept of education and its elements in detail.

تصور تعلیم اور اس کے عناصر پر مفصل نوٹ تحریر کریں۔

II. Discuss the modes of education and their relevance in contemporary society.

تعلیم کے مختلف طریقہ کار کی وضاحت کریں، نیز عصر حاضر میں اس کی اہمیت و معنویت پر مفصل نوٹ تحریر کریں۔

III. Explain the significance of education and its functions in societal development.

تعلیم کی اہمیت اور معاشرتی ترقی میں اس کی فعالیت پر تفصیلی بحث کریں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following Questions.   (5x6=30)

1. Discuss the problems in the computation of national income.

2. What is inflation tax? Who pays for the inflation tax?

3. Explain Okun's Law.

4. What is exchange rate? Explain the difference between real and nominal exchange rates?

5. What is GDP deflator? How is it calculated?

Q.2.   Answer the following questions.   (3x10=30)

1. Discuss the concept of national income. Explain the measurement of national income through Product, Income and Expenditure approaches.

2. What is money? Describe its various forms? What functions does money perform in an economy?

3. What is meant by fiscal policy? Discuss major heads of public expenditures.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   **(6x5=30)**

a. Explain the Currency Exchange Rate.

b. What is the Underground Economy?

c. Briefly explain the concepts of Price Indices and Inflation.

d. Explain the Lead and Lagged variables.

e. Construct the circular flow the National Income of a country.

f. What is the classical dichotomy?

Q.2.   Answer the following questions.   **(3x10=30)**

a. What instruments of credit control are used, and what role does Central Bank play?

b. Explain in detail a critical appraisal of Classical Model.

c. What are the major sources of Govt. revenue and Govt. expenditures?

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   **Answer the following short questions.**   **(6x5=30)**

i.   Production possibility frontier

ii.   Nature, scope and importance of Economics

iii.   Business Cycles

iv.   Utility Function

v.   Total, average, and marginal costs

vi.   Differentiate GDP & GNP

Q.2.   **Answer the following questions.**   **(3x10=30)**

1. Define price elasticity of supply. How is it measured? Explain with the help of schedule and diagram.

2. Define the expansion and contraction, rise and fall in supply with graph.

3. Define Monetary policy and its role in the economy.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions: (6x5=30)

i. Differentiate between fixed cost and sunk cost.

ii. Why is the average cost curve u-shaped?

iii. Why is the marginal product of labor likely to increase initially in the short run as more of the variable input is hired?

iv. A firm that has positive accounting profit does not necessarily have positive economic profit. True or False. Explain your answer

v. Diminishing returns to a single factor of production and constant returns to scale are not inconsistent. Discuss.

vi. What is the difference between economies of scale and returns to scale?

Answer the following questions:

Q2. a) Compare the long-run equilibrium of a monopoly with that of a perfect competition. How do the costs compare? How do the prices compare?   (15+5)

b) Explain the law of variable proportions.

Q3. A firm's total cost function is given by the equation: (10)

$$TC = 4000 + 5Q + 10Q^2$$

Write an expression for each of the following cost concepts:

a) Total Fixed Cost

b) Average Fixed Cost

c) Total Variable Cost

d) Average Variable Cost

e) Average Total Cost

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   (6x5=30)

i. What is 'Economics' about?

ii. What is meant by Price Elasticity of Supply?

iii. What is Marginal Cost?

iv. What is meant by 'Price Discriminations'?

v. What is Marginal Physical Product?

vi. What is an indifference curve?

Q.2.   Answer the following questions.   (3x10=30)

a. Define an Indifference Curve and discuss and prove at least three main characteristics of indifference curves.

b. Discuss demand and supply shifts and their impact on market price.

c. How is price and output determined under Monopolistic Competition in the long run?

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.　Answer the following short questions　　　(6x5=30)

سوال نمبر1:　　درج ذیل سوالات کے مختصر جوابات تحریر کریں۔

1. Enlist Stages of Psycho-Social Development.
2. Explain the characteristics of Psycho-Social development at the preschool level.
3. Elucidate the Domains of Toddler Development.
4. Clarify the Five Factors Affecting Learning.
5. Elucidate the importance of Individual Differences.
6. Describe the Cognitive Development of a Child.

Q.2.　Answer the following questions.　　　(3x10=30)

درج ذیل سوالات کے مختصر جوابات تحریر کریں۔

1. Describe behaviorism as a school of thought regarding Ivan Pavlov and B.F Skinner.
2. Designate the Role of the Teacher in Child Development.
3. Explain the Factors Affecting the Child's Development.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q 1.   Answer the following short questions.   (6x5=30)

سوال نمبر1:   درج ذیل سوالوں کے مختصر جواب دیں۔

i.   Explain teacher education in global perspective.

i.   گلوبل سطح پر اساتذہ کی تعلیم کے بارے میں قائم رائے کی وضاحت کریں۔

ii.   Write the history of teacher training in Pakistan.

ii.   پاکستان میں اساتذہ کی ٹریننگ کی تاریخ بیان کریں۔

iii.   Explain the fundamentals of Profession.

iii.   ایک پیشہ کی بنیادیں کیا ہیں؟ واضح کریں۔

iv.   Write in detail the need and importance of teaching profession.

iv.   پیشہ تدریس کی ضرورت و اہمیت پر جامع نوٹ لکھیں۔

v.   Prophet (PBUH) as role model in teaching. Explain.

v.   محمد (ﷺ) تدریس میں رول ماڈل ہیں۔ وضاحت کریں۔

vi.   Write the process of recruitment of teachers in Pakistan.

vi.   پاکستان میں اساتذہ کی بھرتی کا طریقہ کار بیان کریں۔

Q 2.   Answer the following questions.   (3x10=30)

سوال نمبر2:   مندرجہ ذیل سوالوں کے جواب دیں۔

i.   What are professional codes of ethics for teachers? Explain.

i.   اساتذہ کے لئے پیشہ ورانہ ضابطہ اخلاق کیا ہے؟ وضاحت کریں۔

ii.   Write humanistic approach is teaching.

ii.   تدریس میں انسان دوست اپروچ تحریر کریں۔

iii.   Describe the place of teaching in Islam. Give reference.

iii.   حوالہ جات دیتے ہوئے اسلام میں تدریس کا مقام بیان کریں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

Q 1.   Answer the following short questions.   (6x5=30)

سوال نمبر1:   درج ذیل سوالوں کے مختصر جواب دیں۔

1- حج کے ثمرات مختصر تحریر کریں؟

1-Wrtie the benefits of Hajj?

2- مکہ میں تبلیغ اسلام کا اسلوب تحریر کریں؟

2- Write the style of preaching of Islam in The Mecca?

3- زکوۃ کے مصارف تحریر کریں؟

3- Write the Zakat expenses?

4- اسلام میں اتحاد کی اہمیت تحریر کریں؟

4- Write the importance of unity in Islam?

5- صلح حدیبیہ کے نتائج و ثرات پر نوٹ لکھیں؟

5- Write a note on the results and outcomes of the sulah Hudaybah?

6- ہجرت مدینہ کی وجوہات بیان کریں؟

6- Write the causes of migration to The Madinah?

Q 2.   Answer the following questions.

سوال نمبر2:   مندرجہ ذیل سوالوں کے جواب دیں۔

1- مندرجہ ذیل آیات کا ترجمہ اور تشریح بیان کریں؟(5,5) 10

1-Wrtie the translation of The Qur'anic verses?

اَلْيَوْمَ اَكْمَلْتُ لَكُمْ دِيْنَكُمْ وَاَتْمَمْتُ عَلَيْكُمْ نِعْمَتِيْ وَرَضِيْتُ لَكُمُ الْاِسْلَاَمَ دِيْنًا (المائده)

2- مندرجہ ذیل احادیث کا ترجمہ اور تشریح بیان کریں؟(5,5) 10

2-write the translation of The Hadith ?

عن ابی سعید الخدریؒ عن رسول الله ﷺ قال من رای منکم منکرا فلیغیره بیده فان لم یستطع فبلسان فان لم یستطع فبقلب و ذلک اضعف الایمان (رواه مسلم)

3- اسلامی تہذیب کے معاشرے پر اثرات بیان کریں؟10

3- Describe the effects of Islamic civilization on society? 10?

Ethics (for Non-Muslim Candidates)

Note: **Answer the following questions.** **(3x20=60)**

نوٹ: درج ذیل سوالات کے تفصیلی جواب دیجیے۔

Q.1. Write a note on the teachings of Ethics of Christianity.

سوال نمبر 1: عیسائیت کی اخلاقی تعلیمات پر نوٹ لکھیں۔

Q.2. Elaborate the "Concept of Success" of various religions.

سوال نمبر 2: مختلف مذاہب کی روشنی میں "تصور فلاح" کو واضح کریں۔

Q.3. Explain the teachings of Ethics of Gautam Budh.

سوال نمبر 3: گوتم بدھ کی اخلاقی تعلیمات کا تعارف کروائیں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: **(5x4=20)**

i. Modern man spends a very poor life. Explain it through *Leisure*.

ii. Explain the imagery of bony arms of reality in *New Year Resolutions*.

iii. How homely routine works damage the protagonist in *Woman Work*?

iv. Discuss the despotic character in *Hawk's Monologue*.

v. *A Poison Tree deals* prefers the idea of friendship. Discuss.

Q.2. Explain in your own words ONE of the following stanzas with reference to the context. **(10)**

> The apparition of these faces in the crowd;
> Petals on a wet black bough
>
> Or
>
> And when I feel, fair creature of an hour
> That I shall never look upon three more.

Q.3 Discuss the theme of the poem *The Solitary Reaper* through its imagery.   **(15)**

> Or

Elaborate the message of the poet in *One Art*.

Q.4. Read the following passage and respond to the questions given at the end of the passage.

(10+5=15)

There are signs of changing attitudes towards the plight of river dolphins. In China, they have been officially recognized as a protected species, along with the giant panda and other critically threatened creatures. The Chinese government has taken extensive, and surprising measures to educate local people through films, posters, and even postage stamps. All of this has been greeted with interest by local people. More importantly, associations have been set up, run by local volunteers, to educate fisherman in fishing methods designed to stop the harm which is often done to river dolphins, however unintentionally. These associations are often delighted at how quickly ordinary people understand the importance of urgent action to conserve river dolphins. One occasion has raised public awareness by persuading a nearby factory to use the river dolphin as its trade mark, and other companies have rushed to follow their example, with a dolphin hotel, a dolphin departmental store, dolphin shoes etc. The public imagination has been caught! Not surprisingly, the river dolphin is becoming a household name and its survival problems are well known.

1) What recognition is allotted to dolphin in China?
2) How does public awareness campaign work in China?
3) How does education play its role in safeguarding dolphin?
4) How the public imagination is caught up in China?
5) Which animals have been declared as endangered creatures?
6) Make a precis of the above given paragraph.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions.   **(6x5=30)**

i. What is difference between art and craft?
ii. What is assessment in art curriculum?
iii. Describe colour wheel.
iv. What are cool colours?
v. What does "value" mean in Arts?
vi. What is still life drawing in Art?

Q.2. Answer the following questions.   **(3x10=30)**

i. Discuss the emergence of Islamic calligraphy in detail.
ii. Discuss the role of teacher in teaching art.
iii. Discuss the history of Indus Civilization.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions: **(6x5=30)**

    i.   Differentiate weathering and erosion?
    ii.   Differentiate dew and fog?
    iii.   What is cyclone?
    iv.   What is stratosphere?
    v.   What are tides?
    vi.   What is troposphere?

Answer the following questions: **(3x10=30)**

1. Describe internal Structure of Earth.
2. What are currents and discuss currents of Atlantic Ocean.
3. Describe formation of Sedimentary.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

(5x6=30)   سوال نمبر 1: درج ذیل سوالات کے مختصر جواب تحریر کریں۔

1- سرسید کے مضمون "سمجھ" کا خلاصہ کریں۔

2- محمد حسن آزاد کے طرزِ تحریر پر نوٹ لکھیں۔

3- میر امن کے طرزِ تحریر کی خوبیاں لکھیں؟

4- مرزا غالب کے خطوط کی خوبیاں تحریر کریں۔

5- مذہب کے بارے میں محمد حسین آزاد کے خیالات کا خلاصہ لکھیں۔

سوال نمبر 2: مندرجہ ذیل میں سے کسی ایک اقتباس کی تشریح بحوالہ سیاق و سباق کیجیے نیز سبق کا عنوان اور مصنف کا نام بھی لکھیں۔ (١٠ = ١+١+٢+٦)

(الف) میرا یہ خیال ہے کہ اگر انسانوں کے دل چیر کر ان کا حال دیکھا جاوے تو دانا اور نادان دونوں کے دلوں میں کچھ تھوڑا ہی سا فرق نکلے گا۔ دونوں کے دلوں میں ہمیشہ بہت سے لغو اور بے ہودہ خیال آتے ہیں۔ بے شمار وسوسے دونوں کے دلوں میں اٹھتے ہیں مگر ان دونوں میں یہی فرق ہوتا ہے کہ دانا آدمی ان میں سے انتخاب کر تا ہے اور سمجھتا ہے کہ کون سے خیالات ایسے ہیں جن کو گفتگو میں لانا چاہیے اور کون سے ایسے ہیں جن کو چھوڑ دینا چاہیے۔ نادان آدمی ایسا نہیں کر تا اور جو خیال اس کے دل میں بے سوچ سمجھے منہ سے بکتا جاتا ہے۔

(ب) یہ سچ ہے کہ میں نے سرکار انگریزی کی خیر خواہی کی نظر سے آپ کو ہر گز پناہ نہیں دی۔ سوائے اس کے کہ میں نے چند سال تک سرکاری کالج میں پڑھا تھا اور کسی طرح کا تعلق مجھ کو بلکہ ہمارے خاندان میں سے کسی کو بھی سرکار انگریزی سے نہیں رہا۔ ہم لوگ پشت با پشت شاہِ دہلی کے نمک خوار ہیں۔ میں نے اپنے دل میں آپ کی پناہ دی سے فرض انسانیت ادا کیا ہے اور بس۔

سوال نمبر 3: مندرجہ ذیل شاعروں میں سے کسی ایک کے مختصر حالاتِ زندگی اور شاعری کی خصوصیات لکھیے۔ (٨=٢+٦)

(الف) مرزا غالب   **(ب)** خواجہ میر درد

سوال نمبر 4: مندرجہ ذیل میں سے دو اشعار کی تشریح کیجیے۔ اور شاعر کا نام لکھیے۔ (٦ = ٣+٣)

(١) آتشِ بلند دل کی نہ تھی ورنہ اے کلیم   یک شعلہ برقِ خرمنِ کوہِ طور تھا

(٢) پکڑے جاتے ہیں فرشتوں کے لکھے پر ناحق   آدمی کوئی ہمارا دمِ تحریر بھی تھا

(٣) تغافل نے ترے یہ کچھ دن دکھائے   ادھر تو نے لیکن نہ دیکھا نہ دیکھا

(٤) جب نام تیرا لیجیے تب چشم بھر آوے   اس زندگی کرنے کو کہاں سے جگر آوے

(٥) سوکھتے ہی آنسوؤں کے نور آنکھوں کا گیا   بجھ ہی جاتے ہیں دیے جس وقت سب روغن جلا

سوال نمبر 5: مندرجہ ذیل اشعار کی تشریح کیجیے۔ نظم کا عنوان اور شاعر کا نام لکھیے۔ (٦=١+١+٤)

بے روزگاری نے یہ دکھائی ہے مفلسی   کوٹھے کی چھت نہیں ہے یہ چھائی ہے مفلسی

دیوار و در کے بیچ سمائی ہے مفلسی   ہر گھر میں اس طرح سے بھر آئی ہے مفلسی

پانی کا نوٹ جاوے ہے جوں ایک بار بند

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

Q 1.   Write down short answers of the following questions.   (6x5=30)

سوال نمبر1:   درج ذیل سوالوں کے مختصر جوابات تحریر کیجیے۔

i.   Describe the Literal and terminological meaning of Tafseer.

i.   تفسیر کے لغوی اور اصطلاحی معانی کی وضاحت کیجیے۔

ii.   Write down the definition of Tafseer Bil-Rie and Tafseer Bil-Masoor with examples.

ii.   تفسیر بالماثور اور تفسیر بالرائے کی تعریف مثالوں کے ساتھ تحریر کریں۔

iii.   Write down few objects of Hujj.

iii.   حج کے چند مقاصد تحریر کریں۔

iv.   What is meanings of Mushar-ul-Haram and Ayyam-e-Tashrreq.

iv.   مشعرالحرام اور ایام تشریق سے کیا مراد ہے؟

v.   Explain Talaqe Bine and Talaqe Mughalaza.

v.   طلاق بائن اور طلاق مغلظہ کی وضاحت کیجیے۔

vi.   Write down the definition and the rules for making Muzare.

vi.   فعل مضارع کی تعریف اور بنانے کا قاعدہ تحریر کریں۔

Q 2.   Write down detailed answers of the following questions.   (3x10=30)

سوال نمبر2:   درج ذیل سوالات کے تفصیلی جوابات تحریر کیجیے۔

i.   Write down the Urdu translation following verse.

i.   درج ذیل آیت کا اردو ترجمہ تحریر کریں۔

لَآ اِكْرَاهَ فِى الدِّيْنِ ۫ قَدْ تَّبَيَّنَ الرُّشْدُ مِنَ الْغَيِّ ۫ فَمَنْ يَّكْفُرْ بِالطَّاغُوْتِ وَيُؤْمِنْۢ بِاللّٰهِ فَقَدِ اسْتَمْسَكَ بِالْعُرْوَةِ الْوُثْقٰى ۗ لَا انْفِصَامَ لَهَا ۗ وَاللّٰهُ سَمِيْعٌ عَلِيْمٌ ﴿۲۵۶﴾

ii.   Write down a note in detail regarding Hurmat "Khamro-Maiser" in reference to Surah Al-Baqrah.

ii.   سورۃ البقرہ کی روشنی میں حرمت خمر و میسر پر تفصیلاً نوٹ تحریر کریں۔

iii.   Write down the orders on "Madienat" in reference in Surah Al-Baqarah.

iii.   سورۃ البقرہ کی روشنی میں مدانیت کے احکامات تحریر کریں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   (6x5=30)

(i)   What are the key elements of a well-structured paragraph?
(ii)   What is the difference between expository and narrative essays?
(iii)   Define skimming and explain when it should be used.
(iv)   What is the difference between extensive and intensive reading?
(v)   What is the difference between a summary and a precis?
(vi)   How can you use the library effectively for academic research?

Q.2.   Answer the following questions.   (3x10=30)

1.   Write an essay on "The Role of Communication Skills in Scientific Research and Collaboration".
2.   Compose a job application to the Director of an educational institute, applying for the role of a Communication Skills Trainer. Emphasize your proficiency in communication, experience with public speaking, and your ability to guide students in developing effective communication techniques.
3.   Write a Paragraph on "The Global Impact of Climate Change Policies"

UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Second Semester – Fall 2024

Roll No. ....

Paper: Introduction to Literature-II (Poetry and One Act Plays)
Course Code: ENG-103

Time: 3 Hrs.   Marks: 60

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   (6x5=30)

1. What does the poet think of the villagers in the poem, 'Elegy Written in a Country Churchyard'.
2. Why does Donne use the image of a falling star', 'mandrake root', a mermaid singing' in his poem, 'Go and Catch a falling Star'?
3. What is this talent that Milton refers to in the following line from his sonnet, 'On His Blindness? 'And the one talent which is death to hide.
4. What is the central idea of the poem, 'When I am dead, my dear'?
5. What does the poem, 'The Red Wheelbarrow' teach us?
6. Comment briefly on the given line from 'The Rape of the Lock' by Alexander Pope: "Slight is the subject, but not so the praise."

Q.2.   Answer the following questions.   (2x15=30)

1. Give a detailed character analysis of the character of mommy and daddy in *The Sandbox*.

2. How does Lady Gregory deal with the theme of Irish nationalism in the play, *The Rising of the Moon*?

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions   (6x5=30)

A. Language expresses our identity. Explain.
B. Define slang and give two examples.
C. Write a brief note on Universal Grammar (UG)
D. Define phrase and explain phrase structure rules.
E. Classical conditioning & Operant conditioning.
F. Define Cohesion and explain grammatical cohesion.

Q.2.   Answer the following questions   (3x10=30)

A. Linguistics is a scientific study of language. Elucidate.

B. Write a detailed note on 'Functionalism'.

C. what is Discourse analysis? How are different language functions analysed in discourse analysis?

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions   (6x5=30)

  I.   What is the concept of COHERANCE in essay writing?
  II.   Define intensive and extensive reading.
  III. What do you include in the introduction of an essay?
  IV.   Which personal hobbies should you mention in the CV?
  V.   What is the 'pattern of organizations' of the text?
  VI.   "We can NOT share the same CV for all job postings" explain why?

Q.2. Answer the following questions.   (3x10=30)

1. Write a detailed note on different types of paragraph writing?

2. Select one of the topics below and write a paragraph about it.

  I.   Inflation in our country is leading to…
  II.   I can help to resolve current issues of our country by….
  III. How can a modern women help in building nation?
  IV.   Why is reading an important skill?

3. Narrate a story telling your friend how you were rescued from a dangerous trap.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions   (6x5=30)

(i)   What are the key elements of a well-structured paragraph?
(ii)   What is the difference between expository and narrative essays?
(iii)   Define skimming and explain when it should be used.
(iv)   What is the difference between extensive and intensive reading?
(v)   What is the difference between a summary and a precis?
(vi)   How can you use the library effectively for academic research?

Answer the following questions.   (3x10=30)

Q.No.2.   Write an essay on "The Impact of Artificial Intelligence on the Job Market in Pakistan".

Q.No.3.   Write an application to the Director of the Department of Geography for the post of Lecturer in the subject of Geography.

Q.No.4.   Write a Paragraph on "The Global Impact of Climate Change Policies"

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions   **(6x5=30)**

a.   Write three sentences of **Past Continuous Tense.**
b.   Briefly describe the **Unity and Coherence** in paragraph writing.
c.   How can you avoid faulty reading habits?
d.   Define **Root Word Method** with example.
e.   Define **Topic Sentence and Concluding Sentence** in paragraph writing.
f.   What are the strategies to build vocabulary?

Answer the following questions   **(3x10=30)**

Q.2. Write a paragraph on anyone of the following topics:

    a) My Ambition   b) Information Technology

Q.3. Write a detailed note on Skimming and Scanning reading skills.

Q.4. Read the following passage carefully and answer the following questions.

Globalization is the process by which economies, cultures, and populations around the world become more integrated and interdependent. It is driven by advances in technology, transportation and communication, which have facilitated the flow of people, goods and ideas across national borders. Globalization has both positive and negative aspects. On the positive side, it has led to economic growth, the spread of new ideas and technologies, and increased cultural exchange. In many parts of the world, it has also helped **reduce** poverty and raise living standards. But globalization has also had negative consequences. This has led to job losses in some sectors, as companies move production to countries with lower labour costs. It has also contributed to income inequality and environmental degradation, as companies **prioritize** profits over sustainability.

1.   What is globalization and what are the driving forces behind it?
2.   What are some positive aspects of globalization?
3.   What are some negative consequences of globalization?
4.   Write a suitable title for above paragraph.
5.   Write meanings of bold words.

UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Second Semester – Fall 2024

Roll No. ....

Paper: English -II (Academic Reading and Writing)
Course Code: ENG-113

Time: 3 Hrs.   Marks: 60

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions   (6x5=30)

1. What strategies can help in building a stronger vocabulary?
2. What role does grammar play in improving academic reading and writing skills?
3. How can the SQ3R technique enhance reading comprehension effectively?
4. What are some common reading mistakes, and how can they be corrected?
5. In what ways can speed reading techniques boost understanding and efficiency?
6. How can readers achieve a balance between reading quickly and maintaining accuracy with complex texts?

Q.2.   Answer the following questions   (3x10=30)

1. Write a paragraph on anyone of the following topics: (word limit:120)
   a) The Importance of Reading Books b) The Impact of Social Media on Society
2. What are skimming and scanning, and how do they help improve reading skills?
3. Read the following passage carefully and answer the following questions.

Socrates had many disciples, and the greatest among them was Plato. Plato wrote many books that have survived to this day, and it is through these books that we know a great deal about his master, Socrates. Evidently, governments do not favor people who constantly challenge their ideas or seek the truth. The Athenian government (this was shortly after the time of Pericles) did not approve of Socrates' methods. As a result, they held a trial and condemned him to death.

The authorities told him that if he promised to give up his discussions with people and change his ways, they would pardon him. However, Socrates refused to do so. He chose to drink the cup of poison, which brought him death, rather than abandon what he considered his duty.

Before his death, Socrates addressed his accusers and judges, saying:

"If you propose to acquit me on the condition that I abandon my search for truth, I will say: I thank you, O Athenians, but I will obey God, who, as I believe, assigned me this task, rather than you. As long as I have breath and strength, I will never cease engaging in philosophy. I will continue to approach whomever I meet and ask them, 'Are you not ashamed of setting your heart on wealth and honors while neglecting wisdom, truth, and the betterment of your soul?'

I do not know what death is—it may even be a good thing—and I do not fear it. But I do know that it is wrong to abandon one's duty, and I would rather choose what might be good than what I know to be bad.

Questions:

1. Who was Socrates' greatest disciple, and how do we know about Socrates' life and teachings?
2. Why did the Athenian government disapprove of Socrates' methods?
3. What choice did the authorities give Socrates during his trial, and what was his response?
4. What did Socrates say to his accusers about his search for truth and philosophy before his death?
5. How did Socrates view death, and why did he prefer facing it over abandoning his duty?

UNIVERSITY OF THE PUNJAB
B.S. 4 Years Program / Second Semester – Fall 2024

Roll No. ....

Paper: Communication Skills of English (Compulsory 4)
Course Code: ENG-116

Time: 3 Hrs.   Marks: 60

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   **Answer the following short questions:**   **(6x5=30)**

1. What is a unified coherent paragraph?

2. What are the techniques to write an essay?

3. What are the two techniques to improve translation skills?

4. Why is translation skill important?

5. Define skimming and scanning techniques of reading.

6. What is the difference between intensive and extensive reading?

Q.2.   **Answer the following questions:**   **(3x10=30)**

1. What are the five requirements for personality development?

2. Write a letter to the Editor of "Dawn" to highlight the issue of **Smog (Pollution)**. Also, suggest some steps to reduce/eradicate this issue.

3. Make précis of the following paragraph:

Literature has close relationship with society and culture. It deals with the facts of life in an ideal manner. Life has multiple colours and literature seeks to reflect those colours in an excellent way. It contains sad as well as happy incidents to show that life is a heterogeneous mixture of both. There are laughters as well as tears, sobs as well as joys portrayed in literature. It also presents how the human beings live and what they get or lose in their life. It includes whole culture in it. In short, literature mirrors the present, reflects the past, and predicts the future.

USE SEPARATE ANSWER BOOK FOR EACH PART

BIBLE FOR CHRISTIAN STUDENTS

SECTION—I (20 marks)

Q1. Write short answers of the following questions (words should not exceed to 25):

مندرجہ ذیل سوالات کے مختصر جواب تحریر کریں (الفاظ ۲۵ سے زیادہ نہ ہوں)

1. What are the main themes of Genesis?
   پیدائش کی کتاب کے بڑے موضوعات کیا ہیں؟
2. What was God's covenant with Noah?
   نوح کے ساتھ خدا کا کیا عہد تھا؟
3. What caused Jacob's family to move to Egypt?
   یعقوب کے گھرانہ کو کیوں مصر جانا پڑا؟
4. How do Genesis and Exodus connect?
   کتاب پیدائش اور خروج آپس میں کیسے جڑی ہوئی ہیں؟
5. How do Genesis and Exodus contribute to understanding the Bible's overarching story?
   کتاب پیدائش اور خروج بائبل کی مجموعی کہانی میں کیسے مددگار ہیں؟
6. Define hard breathing in Koine Greek.
   کوئنے یونانی میں سخت سانس / hard breathing کی تعریف کریں۔
7. What is the significance of Iota-Subscript in Greek language?
   یونانی زبان میں ذیلی ای-اوٹا کی کیا اہمیت ہے؟
8. How is Future Active Indicative Tense formed from Present Tense?
   یونانی میں زمانہ حال سے زمانہ مستقبل کیسے بنایا جاتا ہے؟
9. What is Inflection of Noun in Koine Greek?
   کوئنے یونانی میں تصریف سے کیا مراد ہے؟
10. In which language New Testament was written?
    عہد نامہ جدید کس زبان میں تحریر کیا گیا؟

SECTION—II (10+10=20 Marks)

Q.2. Attempt any two questions from the following: at least 150 words each.

کوئی سے دو سوالات کے جواب تحریر کریں: کم از کم ۱۵۰ الفاظ پر مشتمل جواب تحریر کریں

1. Describe the central idea of Psalm 8.
   زبور ۸ کا مرکزی خیال بیان کریں۔
2. What is unique about the Gospel of Mark, and how does it portray Jesus?
   مرقس کی انجیل میں کیا خاص ہے، اور یہ خداوند یسوع کو کیسے پیش کرتی ہے؟
3. How does the Gospel of Luke differ in style and purpose compared to Matthew and Mark?
   لوقا کی انجیل انداز از روز مقصد کے لحاظ سے متی اور مرقس سے کیسے مختلف ہے؟
4. How do the Synoptic Gospels describe the baptism of Jesus, and what is its significance?
   ہم آہنگ اناجیل خداوند یسوع کے بپتسمہ کو کیسے بیان کرتی ہیں، اور اس کی اہمیت کیا ہے؟

SECTION—III (10+10=20 Marks)

Q.3. Attempt any two questions from the following: **Q9 is compulsory**.

کوئی سے دو سوالات کے جواب تحریر کریں، سوال نمبر 9 لازمی ہے۔

1. Decline the Greek word κορη.
   یونانی اسم / لفظ κορη کی مکمل اسمی گردان تحریر کریں۔
2. Write genitive cases of the following Nouns: ἄνθρωπος, λογος, βιβλιον.
   یونانی الفاظ ἄνθρωπος, λογος, βιβλιον کی ملکیتی حالتیں لکھیں۔
3. Write the meanings of the following Greek vocabulary of New Testament: Θεος, Χριστος, Ἰησους.
   دیے گئے یونانی الفاظ کی معنی تحریر کریں: Θεος, Χριστος, Ἰησους
4. Translate the following verses: (into English/Urdu)
   درج ذیل آیات کا ترجمہ کریں: (انگریزی یا اردو میں)
   i. Βίβλος γενέσεως Ἰησοῦ Χριστοῦ υἱοῦ Δαυὶδ υἱοῦ Ἀβραάμ
   ii. Ἀρχὴ τοῦ εὐαγγελίου Ἰησοῦ Χριστοῦ υἱοῦ θεοῦ
   iii. ὁ ἄγγελος Γαβριὴλ ἀπὸ τοῦ θεοῦ..... εἶπεν· χαῖρε, κεχαριτωμένη

GEETA FOR HINDU STUDENTS

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

<div dir="rtl">

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

</div>

Note: Attempt *FOUR* Questions from Section-II and Section-III, Section-I is Compulsory.

SECTION – I (10 x 2 = 20 MARKS)

Q.1. Write short answers of the following questions.

<div dir="rtl">

سوال نمبر 1:   مندرجہ ذیل سوالات کے مختصر جواب لکھیں۔

i.   مہابھارت کس میدان میں ہوئی۔

ii.   بھگوت گیتا میں ارجن کو گیان کس نے دیا؟

iii.   کورو کتنے تھے؟

iv.   ہندو دھرم میں پالنے والے کا نام بتائیں۔

v.   پانڈو کتنے تھے؟

vi.   ہندو دھرم میں برہما، وشنو اور مہیش جی کو کس نام سے جانا جاتا ہے؟

vii.   ہندو دھرم میں جنات (موت) دینے والے کا نام بتائیں۔

viii.   اوم کی تعریف کریں۔

ix.   ہندو دھرم میں پیدا کرنے والے کا نام بتائیں۔

x.   گائتری منتر تحریر کریں۔

</div>

SECTION – II (2 x 10 = 20 MARKS)

Note: Attempt any TWO questions from the following.

<div dir="rtl">

نوٹ: مندرجہ ذیل سوالات کے مختصر جواب لکھیں۔

سوال نمبر 2۔   مہابھارت ہونے کی کوئی بھی دو وجوہات تحریر کریں؟

سوال نمبر 3۔   کرن کا مہابھارت میں کیا کردار ہے؟

سوال نمبر 4۔   ارجن جنگ میں کیوں پریشان تھے؟

سوال نمبر 5۔   پانڈو کتنے تھے؟ اور ان کے نام بتائیں۔

</div>

SECTION – III (2 x 10 = 20 MARKS)

Note: Attempt any TWO questions while Question No. 9 is compulsory.

<div dir="rtl">

نوٹ: مندرجہ ذیل سوالات کے مختصر جواب لکھیں۔ جبکہ سوال نمبر 9 لازمی ہے۔

سوال نمبر 6۔   نکل اور سہدیو کو کیا وردان ملا تھا؟

سوال نمبر 7۔   بھگوت گیتا کے کتنے ابواب ہیں؟ اور ان کے نام لکھیں۔

سوال نمبر 8۔   سنجے نے مہابھارت میں کیا کردار ادا کیا تھا؟

سوال نمبر 9۔   مندرجہ ذیل ہندی الفاظ کا اردو میں ترجمہ کریں

راتری   اوشیہ   نیتر   وایو   جل

</div>

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions.   (6x5=30)

    a. What is the importance of **planning** in writing as a process?

    b. What is the importance of **punctuation marks**?

    c. Write a note on **'Writing as a product'**?

    d. What is the difference between **simple** and **complex vocabulary**?

    e. Why note taking is important for a university student?

    f. What are typographical symbols and where these are used?

Q.2. Answer the following questions.

1. Write a paragraph of **150 words** on any one of the following topics: 12

    a. World has become virtual   b. Writing for a culture

    c. Importance of a Role-Model

2. What techniques should be employed in a **narrative essay** so that it should fulfil its main purpose, give examples with reasons?   08

3. It is said that writing is a complex activity. What do you think how this complexity can be reduced?   10

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions   **(10x3=30)**

1) Explain any two uses of MS ACCESS.
2) What are the four stages of the information processing cycle?
3) What is register memory and where is it located?
4) List down five, five input and output devices. Explain one each of them.
5) What are nested functions in MS Excel?
6) Name four basic components of a computer system.
7) List two types of printers and their primary uses.
8) What is cloud storage, and why is it popular?
9) What is system software? Provide examples.
10) Name two types of application software used for business purposes.

Q.2. Answer the following questions   **(3x10=30)**

1) How data can be visualized graphically? Write method of creating and formatting Charts in MS Excel.
2) Draw a block diagram to illustrate the basic organization of computer system and also highlight each component. Explain each component separately.
3) Explain the role of utility programs in maintaining a computer system. Discuss how disk defragmentation, antivirus software, and backup utilities contribute to system performance and reliability.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions: **(6x5=30)**

i. Define the process of communication.

ii. How Feedback is important in communication?

iii. Enlist the Names of Major Five National Urdu newspapers.

iv. Define the New Media.

v. What are the barriers in communication?

vi. What is Communication, discuss any two Types.

Q.2. Answer the following questions: **(3x10=30)**

i. Explain the broadcast media.

ii. Discuss the role of media in Agenda Setting.

iii. Write the essentials of communication in detail.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following questions.   (6x5=30)

1. Why do you need to understand the purposes, audience, and the context for the message to know whether a specific set of words will work?
2. Briefly describe a miscommunication you've had with a co-worker/ fellow college student/ friend or family   member. Can you identify what barrier(s) prevented your successful communication?
3. How significant is the occasion for speaking in relation to the audience? Elaborate
4. Describe the significance of effective listening and its outcomes?
5. Do you think good communication in an organization improves employees' attitude and performances?
6. Why does an oral presentation have to be simpler than a written message to the same audience? Justify.

Q.2.   Answer the following questions.   (3x10=30)

i.   Write a memo to your employees and inform them about the new policy for taking leaves. Give details of the policy.
ii.   How group meetings help everyone to discuss and decide a solution, explain with an example.
iii.   Write a letter to a client and inform him/her that the bank has extended their credit card limit.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following questions.   (6x5=30)

1. What are the different purposes of oral presentation?
2. How essential is a mind map for the writing process?
3. How is an essay the invention of a student?
4. Briefly define a mind map & why is it needed for essay writing? How important is it to edit one's writing?
5. How is writing done according to an audience?
6. Why is chronology important for a narrative?

Q.2.   Answer the following questions.   (3x10=30)

1. How can we remove hurdles in improving reading as an academic skill?
2. Write a note on basic communication and presentation skills.
3. Write a note on cohesive devices.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions   (6x5=30)

i.   Write a short note on the planets of the Solar system.

ii.   Differentiate between Continental and Oceanic Crust.

iii.   Define Rocks and write a short note on the Igneous Rocks.

iv.   Write a short note on the landforms made by Glaciers.

v.   Write a short note on the composition of the atmosphere.

vi.   Define air pressure and discuss briefly air pressure belts.

Q.2.   Answer the following questions.   (3x10=30)

1: Define Physical Geography. Write a detailed note on the branches of Physical Geography.

2: Discuss the erosional and depositional landforms associated with the work of Running Water.

3: Write a detailed note on air pressure belts and associated various types of Permanent Winds.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   **Answer the following short questions:**   **(15x2=30)**

i.	Define Map
ii.	Enlist various types of map.
iii.	Differentiate between Large scale map and small scale map.
iv.	Write down the uses of Cadastral maps.
v.	What are General reference maps?
vi.	Briefly explain the types of Scale.
vii.	What are Conventional Signs?
viii.	Enlist the different methods used for showing relief features.
ix.	Differentiate between Eastings and Northings.
x.	What is an Ordinance Survey Map?
xi.	Write down any Four Geographic Features which are shown by Line symbols.
xii.	What are general uses of a Topographic map?
xiii.	Enlist various geographic features which are shown by red color on map.
xiv.	What do you know about Aerial Photographs?
xv.	Briefly explain any Two modern techniques used in map making.

Q.2.   **Answer the following questions:**   **(3x10=30)**

i.	Write a detailed note on the Principles of Cartographic design.
ii.	Write a Comprehensive essay on thematic maps and their uses.
iii.	Write a note on the types of Grid Reference.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (6x5=30)

i.   Define Geography and discuss briefly branches of Geography.

ii.   Write a short note on the themes of Geography.

iii.   Write a short note on the origin of Earth.

iv.   Describe briefly the Lunar and Solar eclipses.

v.   What is the difference between Plain, Plateau and Mountains?

vi.   Discuss briefly the elements of weather and climate.

Q.2.   Answer the following questions.   (3x10=30)

I.   Write a detailed note on the internal structure of the earth.

II.   Define the Atmosphere and discuss in detail the structure of the Atmosphere.

III.   Define Tides and explain in detail the different types of Tides.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: **(15x2=30)**

1) What type of tournament formats commonly used at the board level?
2) What are the key roles of referees and officials in a provincial-level tournament?
3) What factors should be considered while preparing the budget for a board-level tournament?
4) Explain the concept of "offside" in ice hockey?
5) What strategies can be used to effectively promote a sports tournament at the university level?
6) What are the key factors to consider when creating a budget for a national-level tournament?
7) How can media coverage enhance the success of a national-level tournament?
8) What is the difference between a flat serve and a topspin serve in tennis?
9) What is a penalty corner in field hockey, and when is it awarded?
10) What does a "double fault" mean in tennis?
11) What are the challenges in managing a university sports tournament, and how can they be addressed?
12) How many players are there in a netball team, and what are their positions?
13) What is the name of the technique where the ball is hit high over the opponent's head in tennis?
14) Can players dribble the ball in netball? Explain
15) How does a defensive player prevent an opponent from scoring in netball?

Q.2.   Answer the following questions: **(3x10=30)**

1) Describe the process of planning and preparing for a provincial-level sports tournament, including budgeting, team formation, and event timeline?

2) Describe the dimensions and layout of a hockey field, including its size, markings, penalty circle, and shooting circle.

3) Discuss the different techniques used in tennis, including the forehand, backhand, serve, and volley, and their purposes in a match?

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

Q.1. Translate the following verses into Urdu or English Language. (10x2=20)

سوال نمبر1: مندرجہ ذیل آیات مبارکہ کا اردو / انگریزی میں ترجمہ کریں۔

1- لِلرِّجَالِ نَصِيبٌ مِّمَّا تَرَكَ الْوَٰلِدَانِ وَالْأَقْرَبُونَ وَلِلنِّسَاءِ نَصِيبٌ مِّمَّا تَرَكَ الْوَٰلِدَانِ وَالْأَقْرَبُونَ مِمَّا قَلَّ مِنْهُ أَوْ كَثُرَ ۚ نَصِيبًا مَّفْرُوضًا ۰

2- يَٰٓأَيُّهَا الَّذِينَ ءَامَنُوا لَا تَقْرَبُوا الصَّلَوٰةَ وَأَنتُمْ سُكَٰرَىٰ حَتَّىٰ تَعْلَمُوا مَا تَقُولُونَ وَلَا جُنُبًا إِلَّا عَابِرِى سَبِيلٍ حَتَّىٰ تَغْتَسِلُوا ۚ

3- يَٰٓأَيُّهَا الَّذِينَ ءَامَنُوٓا إِذَا قُمْتُمْ إِلَى الصَّلَوٰةِ فَاغْسِلُوا وُجُوهَكُمْ وَأَيْدِيَكُمْ إِلَى الْمَرَافِقِ وَامْسَحُوا بِرُءُوسِكُمْ وَأَرْجُلَكُمْ إِلَى الْكَعْبَيْنِ ۚ وَإِن كُنتُمْ جُنُبًا فَاطَّهَّرُوا ۚ

4- وَالْمُحْصَنَٰتُ مِنَ النِّسَاءِ إِلَّا مَا مَلَكَتْ أَيْمَٰنُكُمْ ۖ كِتَٰبَ اللَّهِ عَلَيْكُمْ ۚ وَأُحِلَّ لَكُم مَّا وَرَآءَ ذَٰلِكُمْ أَن تَبْتَغُوا بِأَمْوَٰلِكُم مُّحْصِنِينَ غَيْرَ مُسَٰفِحِينَ ۚ

5- وَاللَّهُ يُرِيدُ أَن يَتُوبَ عَلَيْكُمْ وَيُرِيدُ الَّذِينَ يَتَّبِعُونَ الشَّهَوَٰتِ أَن تَمِيلُوا مَيْلًا عَظِيمًا ۰

6- مَّن يُطِعِ الرَّسُولَ فَقَدْ أَطَاعَ اللَّهَ ۖ وَمَن تَوَلَّىٰ فَمَا أَرْسَلْنَٰكَ عَلَيْهِمْ حَفِيظًا ۰

7- إِنَّ الَّذِينَ يَأْكُلُونَ أَمْوَٰلَ الْيَتَٰمَىٰ ظُلْمًا إِنَّمَا يَأْكُلُونَ فِى بُطُونِهِمْ نَارًا ۖ وَسَيَصْلَوْنَ سَعِيرًا ۰

8- وَاللَّهُ أَعْلَمُ بِأَعْدَآئِكُمْ ۚ وَكَفَىٰ بِاللَّهِ وَلِيًّا وَكَفَىٰ بِاللَّهِ نَصِيرًا ۰

9- الرِّجَالُ قَوَّٰمُونَ عَلَى النِّسَاءِ بِمَا فَضَّلَ اللَّهُ بَعْضَهُمْ عَلَىٰ بَعْضٍ وَبِمَآ أَنفَقُوا مِنْ أَمْوَٰلِهِمْ ۚ

10- يَٰٓأَيُّهَا النَّاسُ اتَّقُوا رَبَّكُمُ الَّذِى خَلَقَكُم مِّن نَّفْسٍ وَٰحِدَةٍ وَخَلَقَ مِنْهَا زَوْجَهَا وَبَثَّ مِنْهُمَا رِجَالًا كَثِيرًا وَنِسَاءً ۚ وَاتَّقُوا اللَّهَ الَّذِى تَسَآءَلُونَ بِهِ وَالْأَرْحَامَ ۚ

Q.2. Use (Ten) attached pronouns with "دین" and give their meanings. (10x1=10)

سوال نمبر2: "دین" کے ساتھ (دس) ضمائر متصلہ لگائیں اور ان کے معانی بتائیں۔

_____ .iii	_____ .ii	_____ .i
_____ .vi	_____ .v	_____ .iv
_____ .ix	_____ .viii	_____ .vii
		_____ .x

Q.3. Write the meanings of the following Qur'anic words. (20x0.5=10)

سوال نمبر3: مندرجہ ذیل قرآنی الفاظ کے اردو / انگریزی میں معانی لکھیں۔

طَائِفَة	3	جُنَاح	2	مِيثَاق	1
الصَّلوٰة	6	مَفْرُوض	5	خَصِيم	4
أُمَّهَات	9	نَصِير	8	الشُّحّ	7

12 قِرَدَةٌ	11 أَخِي	10 غَنِيٌّ	
15 الإِثْمِ	14 قُلُوبٌ	13 قِسط	
18 إِمرَأَةٌ	17 مَوَالِي	16 عَاشِرُوهُنَّ	
	20 سُكُرى	19 دِيَارَكُم	

Q.4. Write the plural with the given words. (20x0.5=10)

سوال نمبر4: مندرجہ ذیل الفاظ کی مد د سے واحد کی جمع لکھیں۔

مشرکین- اولٰئِک- أَبوَاب- حسنات- آیاتٌ- أَعمَالٌ- آلهةٌ- عباد- هُمْ- صالحون-
خبیثون- رَسُلٌ- کتبنا- غَافِلُونَ- ابناء - یعرفون- یَتنٰی- مُؤمِنُونَ- أَسمَآءُ- أَصحَابٌ

	حسنةٌ		غَافِلٌ		صالح		ذٰلک		إِلاهٌ
	بَابٌ		کتبتُ		مشرک		هُوَ		یعرُف
	إِسمٌ"		ابن		رَسُولٌ		عَمَلٌ		یَتِیمٌ
	آیةٌ		صَاحِبٌ		خبیث		مُؤمِنٌ		عبد

Q.5. Match the verses with lines to the translation. (5x2=10)

سوال نمبر5: آیات کو ان کے ترجمے سے لکیر کے ذریعے ملائیں۔

فرماد یجیے کہ تم زمین پر چلو پھرو، پھر (نگاہِ عبرت سے) دیکھو کہ (حق کو) جھٹلانے والوں کا انجام کیسا ہوا	1 هُوَ الَّذِی خَلَقَکُم مِّن طِینٍ ثُمَّ قَضٰی أَجَلًا وَأَجَلٌ مُّسَمًّی عِندَهُ ثُمَّ أَنتُمْ تَمتَرُونَ
اور جب تم نماز کے لئے (لوگوں کو بصورتِ اذان) پکارتے ہو تو یہ (لوگ) اسے ہنسی اور کھیل بنا لیتے ہیں۔ یہ اس لئے کہ وہ ایسے لوگ ہیں جو (بالکل) عقل ہی نہیں رکھتے،	2 قُلْ سِیرُوا فِی الأَرضِ ثُمَّ انظُرُوا کَیفَ کَانَ عَاقِبَةُ المُکَذِّبِینَ
اور ہم اگر آپ پر کاغذ پہ لکھی ہوئی کتاب نازل فرمادیتے پھر یہ لوگ اسے اپنے ہاتھوں سے چھو بھی لیتے تب (بھی) کافر لوگ (یہی) کہتے کہ یہ صریح جادو کے سوا (کچھ) نہیں	3 وَإِذَا نَادَیتُم إِلَی الصَّلَاةِ اتَّخَذُوهَا هُزُوًا وَّلَعِبًا ، ذٰلِکَ بِأَنَّهُم قَومٌ لَّا یَعقِلُونَ
(اللہ) وہی ہے جس نے تمہیں مٹی کے کارے سے پیدا فرمایا (یعنی کرہ أَرضی پر حیاتِ انسانی کی کیمیائی ابتداء اس سے کی)۔ پھر اس نے (تمہاری موت کی) میعاد مقرر فرمادی، اور (انعقادِ قیامت کا) معینہ وقت اسی کے پاس (مقرر) ہے پھر (بھی) تم شک کرتے ہو،	4 وَ إِذَا ضَرَبتُم فِی الأَرضِ فَلَیسَ عَلَیکُم جُنَاحٌ أَن تَقصُرُوا مِنَ الصَّلٰوةِ
اور جب تم زمین میں سفر کرو تو تم پر کوئی گناہ نہیں کہ تم نماز میں قصر کرو.	5 وَلَو نَزَّلنَا عَلَیکَ کِتَابًا فِی قِرطَاسٍ فَلَمَسُوهُ بِأَیدِیهِم لَقَالَ الَّذِینَ کَفَرُوا إِن هٰذَا إِلَّا سِحرٌ مُّبِینٌ

Page 2 of 2

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   (6x5=30)

i.   Write any two definitions of International Relations.

ii.   What is meant by Beviouralism?

iii.   What do you understand by Diplomacy?

iv.   Define National Interest.

v.   What is meant by intangible elements of Power?

vi.   Write down a few lines on Nationalism.

Q.2.   Answer the following questions: (3x10=30)

i.   Discuss the scope of International Relation.

ii.   Give a critical analysis on Idealism.

iii.   Discuss tangible elements of Power.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

Q.1.   Answer the following short questions   (6x5=30)

سوال نمبر 1:   درج ذیل سوالات کے مختصر جوابات تحریر کریں۔

سورۃ النحل میں مکر و فریب کرنے والے لوگ کون سی باتوں سے بے خوف ہوں گے؟   .1

1.   Who are the deceitful people mentioned in Surah Al-Nahl, and what makes them fearless?

سورۃ النحل میں عقیدہ توحید پر جو دلائل دیے گئے ہیں ان میں سے کوئی سے چار دلائل کی وضاحت کریں؟   .2

2.   In Surah Al-Nahl, what arguments are presented for the belief in Tawheed (Oneness of Allah)? Explain any four.

حضرت عیسی علیہ السلام کے جن معجزات کا ذکر سورۃ آل عمران میں ہے ان کو بیان کریں؟   .3

3.   List the miracles of Prophet Isa (AS) mentioned in Surah Aal-e-Imran.

"ان مثل عیسی عند اللہ کمثل آدم" کی وضاحت کریں؟   .4

4.   Explain the verse "ان مثل عیسی عند اللہ کمثل آدم".

دعوتی اسلوب کس طرح کا ہونا چاہیے؟   .5

5.   What should be the approach and style of Dawah (invitation to Islam)?

"ولقد بعثنا فی کل امۃ رسولا ان اعبدوا اللہ و اجتنبوا الطاغوت ۚ فمنهم من هدی اللہ و منهم من حقت علیه الضللۃ ۚ فسیروا فی الارض فانظروا کیف کان عاقبۃ المکذبین" ترجمہ کریں۔   .6

6.   Translate the verse: "ولقد بعثنا فی کل امۃ رسولا ان اعبدوا اللہ و اجتنبوا الطاغوت ۚ فمنهم من هدی اللہ و منهم من حقت علیه الضللۃ ۚ فسیروا فی الارض فانظروا کیف کان عاقبۃ المکذبین"

Q.2.   Answer the following questions.   (3x10=30)

درج ذیل سوالات کے جامع جوابات تحریر کریں۔

"وللہ علی الناس حج البیت من استطاع الیه سبیلا" کی روشنی میں حج کے مختلف پہلوؤں پر روشنی ڈالیں؟   .1

1.   In light of the verse "وللہ علی الناس حج البیت من استطاع الیه سبیلا", elaborate on the various aspects of Hajj.

"وقال اللہ لا تتخذوا الهین اثنین" کی روشنی میں توحید باری تعالی پر مفصل نوٹ تحریر کریں۔؟   .2

2.   In light of the verse "وقال اللہ لا تتخذوا الهین اثنین", write a detailed note on the concept of Tawheed (Oneness of Allah).

"یایها الذین امنوا لا تاکلوا الربوا اضعافا مضعفۃ" کی روشنی میں حرمت سود پر جامع نوٹ لکھیں؟   .3

3.   In light of the verse "یایها الذین امنوا لا تاکلوا الربوا اضعافا مضعفۃ", write a comprehensive note on the prohibition of interest (Riba)

UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Second Semester – Fall 2024

Roll No. ....

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

سوال نمبر1:   مندرجہ ذیل سوالات کے جواب لکھیں۔   (6x5=30)

1۔ "کتاب البیوع" کی روشنی میں چار ممنوعہ بیوع کی وضاحت کریں۔

2۔ "کتاب الآداب" میں 'سلام' کرنے کے کیا اصول بیان ہوئے ہیں؟

3۔ "کتاب الاماره" میں سے امیر کے متعلق کوئی سی تین احادیث کا ترجمہ لکھئے۔

4۔ "کتاب الجہاد" کی روشنی میں جہاد کے چھ اصول بیان کیجئے۔

5۔ "کتاب الآداب" کی روشنی میں کسی کے گھر جانے کی اجازت کے آداب لکھئے۔

6۔ صلہ رحمی کی اہمیت پر کوئی سی تین احادیث لکھیں۔

سوال نمبر2:   مندرجہ ذیل سوالات کے جواب لکھیں۔

1۔ حلال کاروبار کی اہمیت و فضیلت اور اس کے اصول بیان کریں۔   (10)

2۔ درج ذیل حدیث کا ترجمہ و تشریح کریں۔   (6+4=10)

بَعَثَ النَّبِيُّ صَلَّى اللهُ عَلَيْهِ وَسَلَّمَ جَدَّهُ أَبَا مُوسَى وَمُعَاذًا إِلَى اليَمَنِ، فَقَالَ: «يَسِّرَا وَلاَ تُعَسِّرَا، وَبَشِّرَا وَلاَ تُنَفِّرَا وَتَطَاوَعَا»

3: درج ذیل حدیث کا ترجمہ و تشریح کریں۔   (6+4=10)

قَالَ النَّبِيُّ صَلَّى اللهُ عَلَيْهِ وَسَلَّمَ: «يَا عَبْدَ الرَّحْمَنِ بْنَ سَمُرَةَ، لاَ تَسْأَلِ الإِمَارَةَ، فَإِنَّكَ إِنْ أُوتِيتَهَا عَنْ مَسْأَلَةٍ وُكِلْتَ إِلَيْهَا، وَإِنْ أُوتِيتَهَا مِنْ غَيْرِ مَسْأَلَةٍ أُعِنْتَ عَلَيْهَا

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

Q.1.   Write short answers of the following.   (15x2=30)

سوال نمبر 1:   درج ذیل سوالات کے مختصر جواب تحریر کریں۔

1. ختم نبوت کی وضاحت کیجیے۔

1. Explain the Khatam Nabūwat?

2. قبل از اسلام عربوں کی تین مشہور اقوام کے نام تحریر کیجیے۔

2. Write the names of three famous Arab nations before Islam.

3. نبی ﷺ کے والد نے وراثت میں کیا چھوڑا؟

3. What did Holy Prophet (SAW)'s father leave as an inheritance?

4. واقعہ شق صدر کے بارے میں مختصراً بیان کیجیے۔

4. Briefly describe the happening of Shaq Sadr .

5. دوسری وحی کے موضوعات لکھیے۔

5. Narrate the topic of the second revelation.

6. طائف میں نبی ﷺ کو کس نے انگور پیش کیے؟

6. Who presented the grapes to Holy Prophet (SAW) in Taif?

7. نبی ﷺ کی چار ازواج مطہرات کے اسماء گرامی لکھیے۔

7. Write down the names of four wives of Holy Prophet (SAW).

8. ظہور اسلام کے وقت یہود کے معروف قبائل کون سے تھے؟

8. At the time of emergence of Islam, which were the famous tribes of Jews?

9. بیعت عقبہ اولیٰ کب ہوئی؟ اس کو بیعت عقبہ کیوں کہا جاتا ہے؟

9. When was the first pledge of allegiance? Why is it called Bai'at Aqaba?

10. اطاعت رسول ﷺ پر ایک آیت قرآنی بمعہ ترجمہ لکھیے۔

10. Write a Quranic verse on the obedience of Holy Prophet (SAW) with translation.

11. مدینہ منورہ میں دعوت نبوی ﷺ کے اہم نکات لکھیے۔ (صرف عنوانات)

11. Write down the important points of preaching of Holy Prophet (SAW) in Madinah.

12. ہجرت مدینہ کے بعد نبی ﷺ نے کس مسجد کی بنیاد رکھی؟

12. After the migration to Madinah, which mosque was founded by Holy Prophet (SAW)?

13. بیعت رضوان کی وضاحت کیجیے۔

13. Explain the Bait-e-Rizwan.

14. سریہ سے کیا مراد ہے؟ نیز سرایا کی تعداد بیان کیجیے۔

14. What is meant by Sarayā. Also write the number of Sarāyā.

15. الرحیق المختوم اور رحمۃ للعالمین ﷺ کے مصنفین کے اسماء گرامی تحریر کیجیے۔

15. Write down the names of authors of Rahmat ul lil Alameen and Seerat- un- Nabi (SAW).

Q.2   Answer the following questions.   (3x10=30)

سوال نمبر 2:   درج ذیل سوالات کے جوابات تحریر کریں۔

1: قبل از اسلام عربوں کی معاشرتی حالات پر روشنی ڈالیے۔

1. Explain the social conditions of Arabs before Islam.

2: پہلی اور دوسری ہجرت حبشہ کے واقعات تفصیلاً تحریر کیجیے۔

2. Describe the happenings of the first and second migration of Abyssinia in detail.

3: فتح مکہ کی وجوہات اور واقعات پر بحث کیجیے۔

3. Discuss the causes and happenings of conquer of Makkah.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

سوال نمبر1۔ درج ذیل اجزاء کے مختصر جوابات دیجئے۔ (15x2=30)

1. حدیث جبریل میں "ایمان" سے کیا مراد ہے؟
2. متقین کی صفات لکھیں۔
3. حدیث تقریری کی تعریف کریں۔
4. "میثاق مدینہ" کی مختصر وضاحت کریں
5. حدیث کے مطابق کن چار چیزوں میں دنیا کی بھلائی رکھی گئی ہے۔
6. اسلام کن پانچ بنیادوں پر قائم ہے؟
7. صحاح ستہ میں سے دو کتب احادیث کے نام لکھیں۔
8. نبی کریمﷺ کی بیٹیوں کے نام لکھیں۔
9. صلح حدیبیہ کی دو شرائط لکھیں۔
10. حدیث کی لغوی اور اصطلاحی تعریف کریں۔
11. وقرن فی بیتکن سے کیا مراد ہے؟
12. امین الامت کس صحابی کا لقب ہے؟
13. من یرد اللہ بہ خیر یفقہہ فی الدین کا ترجمہ کریں
14. اسلامی تہذیب کی دو خصوصیات لکھیں۔
15. زرعی پیداوار کی زکوٰۃ کا نام اور اس کی مقدار کیا ہے۔

درج ذیل سوالات کے تفصیلی جواب دیجیے۔ (3x10=30)

سوال نمبر2۔ درج ذیل آیت مبارکہ کا ترجمہ و تشریح کیجیے۔ (ترجمے کے "6" اور تشریح کے "4" نمبر ہیں)

لِلّٰہِ مَا فِی السَّمٰوٰتِ وَمَا فِی الْاَرْضِ ط وَاِنْ تُبْدُوْا مَا فِیْۤ اَنْفُسِکُمْ اَوْ تُخْفُوْہُ یُحَاسِبْکُمْ بِہِ اللّٰہُ ط فَیَغْفِرُ لِمَنْ یَّشَآءُ وَیُعَذِّبُ مَنْ یَّشَآءُ ط وَاللّٰہُ عَلٰی کُلِّ شَیْءٍ قَدِیْرٌ ﴿۲۸۴﴾

سوال نمبر3۔ مطالعہ سیرت النبیﷺ کی ضرورت و اہمیت پر روشنی ڈالیں۔

سوال نمبر4۔ اسلامی تہذیب سے کیا مراد ہے؟ نیز اسلامی تہذیب کی خصوصیات لکھیں۔

Ethics (for Non-Muslim Candidates)

Note: Answer the following questions. (3x20=60)

نوٹ: مندرجہ ذیل سوالات کے جواب تحریر کیجئے۔

سوال نمبر1۔ عیسائیت کی اخلاقی تعلیمات پر نوٹ لکھیں۔

سوال نمبر2۔ مختلف مذاہب کی روشنی میں "تصور فلاح" کو واضح کریں۔

سوال نمبر3۔ گوتم بدھ کی اخلاقی تعلیمات کا تعارف کروائیں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

Q 1.　Answer the following short questions.　　　　(6x5=30)

سوال نمبر1:　　درج ذیل سوالوں کے مختصر جواب دیں۔

i. Write three manners for the Holy Prophet (PBUH).

i. تین آدابِ نبوی (ﷺ) تحریر کریں؟

ii. Briefly write the two events of Battle Badar.

ii. غزوہ بدر کے دو واقعات مختصراً تحریر کریں؟

iii. Write the any three terms of Peace of Hudaybiyah.

iii. صلح حدیبیہ کی کوئی سی تین شرائط تحریر کریں۔

iv. Highlight the two main sources of Islamic Law?

iv. اسلامی قانون کے دو بنیادی آخذ پر روشنی ڈالئے؟

v. Write three characteristics of Islamic economic system.

v. اسلام کے معاشی نظام کی تین خصوصیات تحریر کریں؟

vi. Describe the three qualities of Hazrat Umar's (R.A) system of Government.

vi. حضرت عمر رضی اللہ عنہ کے نظام حکومت کی تین خوبیاں بیان کریں۔

Q 2.　Answer the following questions.　　　　(3x10=30)

سوال نمبر2:　　مندرجہ ذیل سوالوں کے جواب دیں۔

i. Highlight the causes events of Hijra Madinah?

i. ہجرت مدینہ کے اسباب، واقعات پر روشنی ڈالئے؟

ii. Describe the important points and significance of the fair well sermon?

ii. خطبہ حجۃ الوداع کے اہم نکات اور اہمیت تحریر کریں؟

iii. Write the merits of the social system of Islam?

iii. اسلام کے معاشرتی نظام کی خوبیاں تحریر کریں؟

Ethics (for Non-Muslim Candidates)

Q 2.   Answer the following questions.   (3x20=60)

<div dir="rtl">

سوال نمبر 2:   مندرجہ ذیل سوالوں کے جواب دیں۔

</div>

i.   What is concept of freedom and responsibility in Ethics? Elaborate.

<div dir="rtl">

i.   اخلاقیات میں آزادی اور ذمہ داری کا کیا تصور ہے؟ روشنی ڈالیے۔

</div>

ii.   Explain the Ethical teaching with special reference to Buddhism.

<div dir="rtl">

ii.   بدھ مت کی اخلاقی تعلیمات کی وضاحت کیجئے؟

</div>

iii.   Write a comprehensive note on the rule of educational institutions for the promotion of moral values in society.

<div dir="rtl">

iii.   معاشرے میں اخلاقی اقدار کی ترقی کے لئے تعلیمی اداروں کے کردار پر جامع نوٹ تحریر کریں۔

</div>

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

سوال نمبر 1: درج ذیل سوالات کے مختصر جوابات دیں؟

Question No. 1: Give short answers to the following questions: (15×2=30)

١۔ حرمتِ سود کے حوالے سے قرآنی آیت یا ترجمہ لکھیں۔

1. Write a Quranic verse or translation regarding the prohibition of usury.

٢۔ قرآن کریم کا نزول کب اور کتنے عرصے میں ہوا؟

2. When and for how long was the Holy Quran revealed?

٣۔ وحی کی لغوی اور اصطلاحی تعریف بیان کریں؟

3. Explain the literal and terminological definitions of revelation.

٤۔ اِنَّ اللہَ یُحِبُّ الَّذِیۡنَ یُقَاتِلُوۡنَ فِیۡ سَبِیۡلِہٖ صَفًّا کَاَنَّہُمۡ بُنۡیَانٌ مَّرۡصُوۡصٌ کا ترجمہ کریں۔

4. Translate the verse: اِنَّ اللہَ یُحِبُّ الَّذِیۡنَ یُقَاتِلُوۡنَ فِیۡ سَبِیۡلِہٖ صَفًّا کَاَنَّہُمۡ بُنۡیَانٌ مَّرۡصُوۡصٌ

٥۔ صحیح بخاری کا مکمل نام لکھیں۔

5. Write the full name of Sahih Bukhari.

٦۔ صحیح حدیث کی شرائط کیا ہیں؟

6. What are the conditions of the Sahih Hadith?

٧۔ حربِ فجار سے کیا مراد ہے؟

7. What is meant by Harb e Fajjar?

٨۔ شقِ صدر سے کیا مراد ہے؟

8. What is meant by Shaq e Sadr?

٩۔ میثاقِ مدینہ سے کیا مراد ہے۔ تین نکات لکھیں۔

9. What is meant by the Treaty of Madinah? Write three points.

١٠۔ اسلامی فقہ کے ماخذ بیان کریں۔

10. Describe the sources of Islamic jurisprudence.

١١۔ فرقہ واریت سے کیا مراد ہے؟

11. What is meant by sectarianism?

١٢۔ بنو عباس کا دور کب سے کب تک ہے؟

12. How long has the era of Banu Abbas lasted?

١٣۔ اسلام اور سائنس کے حوالے سے ایک قرآنی آیت یا ترجمہ لکھیں۔

13. Write a Quranic verse or translation regarding Islam and science.

١٤۔ ناسخ و منسوخ سے کیا مراد ہے؟

14. What is meant by Nasikh and Mansukh?

١٥۔ تین مسلمان سائنسدانوں کے نام تحریر کریں۔

15. Write the names of three Muslim scientists.

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

Question No. 2: Write comprehensive answers to the following questions: (3×10=30)

١۔ اسلام کے معاشی نظام پر جامع نوٹ لکھیں۔

1. Write a comprehensive note on the economic system of Islam.

٢۔ صلح حدیبیہ کے اسباب، واقعات اور نتائج بیان کریں۔

2. Describe the causes, events, and results of the Peace of Hudaybiyah.

٣۔ اسلامی تہذیب و تمدن پر تفصیلی نوٹ تحریر کریں۔

3. Write a detailed note on Islamic culture and civilization.

Ethics (for Non-Muslim Candidates)

Note: Answer the following questions.   (3x20=60)

نوٹ: درج ذیل سوالات کے تفصیلی جواب دیجیے۔

Q.1. Write a note on the teachings of Ethics of Christianity.

سوال نمبر 1:   عیسائیت کی اخلاقی تعلیمات پر نوٹ لکھیں۔

Q.2. Elaborate the "Concept of Success" of various religions.

سوال نمبر 2:   مختلف مذاہب کی روشنی میں "تصور فلاح" کو واضح کریں۔

Q.3. Explain the teachings of Ethics of Gautam Budh.

سوال نمبر 3:   گوتم بدھ کی اخلاقی تعلیمات کا تعارف کروائیں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Give precise and short answers of the following: (5x6=30)

Program 1

```cpp
int main()
{
      int x = 30;
      cout << --x - 3 << ", ";
      cout << x++;

      return EXIT_SUCCESS;
}
```

Program 2

```cpp
int main()
{
      int marks = 60;
      if (marks > 60 && marks < 100)
            cout << "Pass";
      else
            cout << "Fail";

      return EXIT_SUCCESS;
}
```

Program 3

```cpp
int main()
{
      int y = 3;
      switch (y)
      {
            case 1:
                  cout << "one" << endl;
            case 2:
                  cout << "two" << endl;
            case 3:
                  cout << "three" << endl;
                  break;
            default:
                  cout << "four";
      }

      return EXIT_SUCCESS;
}
```

Program 4

```cpp
void foo(int* x, int y)
{
      (*x) = (*x) + (*x);
      y = y + y;
}

int main()
{
      int a = 4, b = 7;
      foo(&a, b);
      cout << a << " " << b << endl;

      return EXIT_SUCCESS;
}
```

Program 5

```
int main()
{
    int X[] = { 15, 30, 35, 60, 120 };
    int* p = X;

    while (*p < 120)
    {
        if (*p % 2 != 0)
            *p = *p + 1;
        else
            *p = *p + 2;

        p++;
    }

    for (int I = 4; I >= 1; I--)
    {
        cout << X[I] << "*";

        if (I % 2 == 0)
            cout << endl;
    }

    cout << X[0] * 2 << endl;

    return EXIT_SUCCESS;
}
```

Q.2.   Answer the following questions: (3x10=30)

1) Write a program that calculates the **surface area of a circle**. The program should take the **radius** of the circle as input from the user and display the calculated area.

The formula for the **surface area of a circle** is:

$$Area = \pi r^2$$

where r is the **radius** of the circle, and π (**pi**) is approximately 3.14159.

2) Write a function named **digitCount** that takes an **integer (-9999 to 9999)** as input and returns a string indicating whether the number is "One-digit", "Two-digit", "Three-digit", or "Four-digit". If the input is outside the range of -9999 to 9999, the function should return "Invalid number".

For example:

- For input **1**, the function should return **"One-digit"**.
- For input **-23**, the function should return **"Two-digit"**.
- For input **10000**, the function should return **"Invalid number"**.

3) Write a function named **flipStrings** that takes the following arguments:

1. An **array of strings**.
2. An **integer** representing the number of strings in the array.

The function must **reverse the order** of the strings in the array (without creating a new array).

For example, if the array passed to the function contains the following values:

Index:	0	1	2	3	4
Values:	apple	banana	cherry	date	fig

After the function executes, the array should be modified to look like this:

Index:	0	1	2	3	4
Values:	fig	date	cherry	banana	apple

The function **should not return any value**.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Solve the following.   **(10x3=30)**

1: Find the centre and radius of the sphere $x^2 + y^2 + z^2 + 3x - 4z + 1 = 0$.

2 Find a unit vector u in the direction of the vector from $P_1(1,0,1)$ to $P_2(3,2,0)$.

3 Find the vector projection of a force $F = 5i + 2j$ onto $v = i - 3j$ and the scalar component of F in the direction of v.

4 Find the point where the line $x = 2$, $y = 3 + 2t$, $z = -2 - 2t$ intersects the plane $6x + 3y - 4z = -12$.

5 Find the velocity, speed and acceleration of a particle whose motion in space is given by vector $r(t) = (2\cos t)i + (3\sin t)j + 4t\, k$.

6 Find the length of the curve $r(t) = (\sqrt{2}t)i + (\sqrt{2}t)j + (1 - t^2)k$ from $(0,0,1)$ to $(\sqrt{2}, \sqrt{2}, 0)$.

7 Find **T, N** and $\mathcal{K}$ for space curves $r(t) = (\cos t + t\sin t)\,i + (\sin t - t\cos t)\,j + 3\,k$.

8 Find the tangent plane to the surface $f(x, y, z) = x^2 + 2xy - y^2 + z^2 - 7 = 0$ at the point $P_0(1, -1, 3)$.

9 Find the gradient of the given function at point P

$$f(x, y) = e^{3x}\tan y, \quad P(0, \frac{\pi}{2})$$

10 Find the directional derivative of $f(x, y) = x^3 - 3x^2y - y^3$ at point $P(1, -2)$ in direction $u = \frac{1}{2}(-i, \sqrt{3}j)$.

Q.2.   Solve the following.   **(3x10=30)**

1 Find the curvature for the helix vector $r(t) = (4\cos t)\,i + (4\sin t)\,j + 3t\,k$.

2 Find the maximum and minimum values of the function $f(x, y) = 3x + 4y$ on the circle $x^2 + y^2 = 1$.

3 Convert $\int_0^{2\pi} \int_0^{\sqrt{2}} \int_r^{\sqrt{4-r^2}} 3dz\, r\, dr\, d\theta$, $r \geq 0$ to

(a) rectangular coordinates with the order of integration $dz\, dx\, dy$

(b) spherical coordinates. Then

(c) evaluate the new integral in **(b)**

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Solve the following.

(i)	How many 3 digit numbers can we make using the digits 2, 3, 4, 5, and 6 without repetitions?	(5)
(ii)	Define Mean, Median and Mode. Give an empirical relation between them.	(5)
(iii)	Prove that: if A and B are any two events defined in a simple space S, then $P(A \cup B) = P(A) + P(B) - P(A \cap B)$.	(5)
(iv)	Find the arithmetic mean, geometric mean and harmonic mean of the series 1, 3, 9, 27, 81,...,3^n.	(5)
(v)	A set of eight cards contains one joker. A and B are two players and A chooses 5 cards at random, B taking the remaining 3 cards. What is the probability that A has the joker.	(5)
(vi)	Write a note on binomial distribution.	(5)

Solve the following.

Q.2	In a certain college, 4% of the men and 1% of the women are taller than 6 feet. Furthermore, 60% of the students are women. Now if a student is selected at random and is taller than 6 feet. What is the probability that the student is a woman?	(6)
Q.3	The following are the volumes in deciliters of 10 cans of peaches distributed by a certain company: 46.4, 46.1, 45.8, 47.0, 46.1, 45.9, 45.8, 46.9, 45.2, and 46.0. Find a 90% confidence interval for the variance of all such cans of peaches distributed by this company, assuming volume to be a normally distributed variable.	(6)
Q.4	Two drawings each of three balls are made from a bag containing 5 white and 8 black balls; the balls are not being replaced before the next trial. What are the probabilities that the first drawing will give 3 white balls and the second 3 black balls?	(6)
Q.5	The following table shows the distribution of the maximum loads in short tons supported by certain cables produced by a company.	(6)

Max. loads (short tons)	10.3-10.7	10.8-11.2	11.3-11.7	11.8-12.2	12.3-12.7
No. of cables	12	17	14	6	4

Calculate the mean, the median and the mode.

Q.6 A continuous random variable X has the probability distribution function

$$f(x) = A(2 - x)(2 + x), \qquad 0 \le x \le 2$$

$$= 0, \text{ elsewhere.}$$

Find (a) the value of A, (b) $P(X = \frac{1}{2})$, (c) $P(X \le 1)$.

(6)

Page 2 of 2

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Solve the following.   (5x6=30)

1. Find the pedal equation of the parabola $y^2 = 4a(x + a)$.

2. Find the asymptotes of the curve $2xy + 2y = (x - 2)^2$.

3. Determine the nature of the singular point of the curve $x^4 - ax^2y + axy^2 + a^2y^2 = 0$.

4. Find the envelop of the family of lines $x \cos c + y \sin c = p$

5. Find the direction cosines and measures of the direction angles of the line L passing through $(-3, 4, 2)$ and $(4, -5, 7)$.

Q.2.   Solve the following.   (3x10=30)

1. Determine the center, foci and vertices of the hyperbola $y^2 - x^2 - 10y + 6x = 0$. Also, sketch the graph.

2. Find the area lying above the x-axis and included between the circle $x^2 + y^2 - 2ax = 0$ and the parabola $y^2 = ax$.

3. Find an equation of the cone whose directrix is $y^2 = x$, $z = 4$ and whose vertex is at $A(0, 2, 0)$.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Solve the following.   **(6x5=30)**

i. For what value of c will the following equation represent a pair of straight lines

$$4x^2 - 9y^2 - 2(8 + c)x - 18y = 29 + 2c.$$

ii. Find the angle between the following pair of lines $11x^2 + 16xy - y^2 = 0$

iii. Find equation of the asymptotes of the curve $2xy = x^2 + 3$.

iv. Find points of relative extreme of the curve $f(x) = 2x^3 - 15x^2 + 36x + 10$.

v. Express the equation in cylindrical and spherical coordinates $x^2 - y^2 - z^2 = 1$.

vi. Show that the straight line $\frac{x}{1} = \frac{y}{2} = \frac{z}{3}$ is perpendicular to the plane $4x + 8y + 12z + 19 = 0$.

Q.2.   Solve the following.   **(3x10=30)**

I.   Find the shortest distance between the straight lines $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{4}$ and $\frac{x-2}{3} = \frac{y-4}{4} = \frac{z-5}{5}$.

Also find equation of straight line perpendicular to both lines.

II.   Find the envelope of an ellipse having its axes the coordinate axes and sum of these axes

constant and equal to 2a.

III.   Analyze and graph the conic represented by the equation $\sqrt{x} + \sqrt{y} = 1$.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Solve the following. (6x5=30)

1. Find the tangential and normal components of acceleration of a point describing the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ with uniform speed v when the particle is at $(0, b)$.

2. ABC is an isosceles triangular lamina in which $AB = AC = 15$ inches, $BC = 24$ inches. The weight of the lamina is 24 lb and weights of 6, 6, and 4 lbs are placed at the corners A, B, and C, respectively. Find the distance of the center of gravity of the system from BC.

3. A particle starts from rest with a constant acceleration G. When its velocity acquires a ceratin value U, it moves uniformly and then its velocity starts decreasing with a constant acceleration $2G$ till it comes to rest. Find the distance traveled by the particle, if the time taken from rest to rest is t.

4. A particle describes the curve $\frac{a}{r} = \cosh(n\theta)$ under a force $\vec{F}$ to the pole. Check whether the force can be stated as $F \propto \frac{1}{r^3}$.

5. Discuss the motion of a particle moving in a straight line with an acceleration x^3, when x is the distance of the particle from a fixed point O on the line if it starts at $t = 0$ from a point $x = c$ with a velocity $\frac{c^2}{\sqrt{2}}$.

6. Find the general solution of the Simple Harmonic Motion.

Q.2.   Solve the following (3x10=30)

1. Apply the formula $\frac{v^2}{\rho}$ for normal acceleration to find the radius of curvature at the vertex of the parabola $y^2 = 4ax$.

2. Two particles travel along a straight line. Both start at t same time and are accelerated uniformly at different rates. The motion is such that when a particle attains the maximum velocity v, its motion is retarded uniformly. The two particles come to rest simultaneously at a distance x from the starting point. If the acceleration of the first is 'a' and that of the second is $\frac{1}{2a}$, find the distance between the points where the two particles attain their maximum velocities.

3. Discuss the projectile motion and show that maximum range of the projectile is given by $R_{max} = \frac{v_0^2}{g}$.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Solve the following.   **(6x5=30)**

I.   Consider the following functions mapping from $\mathbb{R}$ into $\mathbb{R}$ as follows:
$f(x) = x^2$, $g(x) = \sqrt{x^2 + 1}$; then explore $fog(x)$ is equal to $gof(x)$?

II.   Consider the sequence given by $a_n = \frac{n-1}{n+1}$ for $n \in \mathbb{N}$, then show that
$a_{n+1} = \frac{2}{(n+1)(n+2)} + a_n$.

III.   Draw the Hasse's diagram of the divisibility relation 'a divides b' on the set $\{1,2,3,6,12,24,36,48,72\}$. Find the greatest lower bound for $\{2,3\}$ and least upper bound $\{24,36\}$.

IV.   Find the recursive relation for a sequence $\{a_n\}$, $where\ n = 1,2,3, ...$ if $a_n = 10^n + bn$.

V.   How many positive integers between 100 and 999 inclusive which Divisible by 3 or 4.

VI.   Prove or disprove: If n is an odd integer, then n^2 is odd.

Q.2.   Solve the following   **(3x10=30)**

I.   Use Principal of Mathematical induction: Prove that
$$S(n): 1^3 + 2^3 + \cdots + n^3 = \left(\frac{n(n + 1)}{2}\right)^2, \quad for\ n \in \mathbb{N}.$$

II.   For the set $S = \{0, 1, 2, 3\}$ then which of the properties are reflexive, anti-reflexive, symmetric, anti-symmetric and transitive for the relation.
$$T = \{(m, n)|\ m \le n,\ m, n \in S\}$$

III.   Show that the statement $((p \to q) \wedge (q \to r)) \to (p \to r)$ is a tautology.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Solve the following.   **(6x5=30)**

1. If A and B are square matrices of the same order, then explain why in general $(A - B)^2 \neq A^2 - 2AB + B^2$

2. Solve $\sqrt{2x + 8} + \sqrt{x + 5} = 7$

3. Find the first four terms of the arithmetic sequence, if $3a_7 = 7a_4$ and $a_{10} = 33$.

4. Use mathematical induction to check whether the following relation holds for every positive integer n.
$$1 + 3 + 5 + ... + (2n - 1) = n^2$$

5. Write the sets $A = \{0, 1, 2, ..., 100\}$ and $B = \{100, 101, 102, ..., 400\}$ in set builder notation.

6. Check whether the following relation holds
$$\begin{vmatrix} a + \lambda & b & c \\ a & b + \lambda & c \\ a & b & c + \lambda \end{vmatrix} = \lambda^2(a + b + c + \lambda).$$

Q.2.   Solve the following.   **(3x10=30)**

1. Evaluate $(1 + \omega - \omega^2)^8$.

2. Show that the sum of n arithmetic means between a and b is equal to n times their arithmetic mean.

3. Evaluate the following
$$\begin{vmatrix} 2 & 3 & 1 & -1 \\ 4 & 0 & 2 & 1 \\ 5 & 2 & -1 & 6 \\ 3 & -7 & 2 & -2 \end{vmatrix}$$

UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Second Semester – Fall 2024

Roll No. ....

Paper: Fundamental App. of Calculus / Univ. Optional (Compl)
Course Code: MATH-116

Time: 3 Hrs.   Marks: 60

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Solve the following. (6x5=30)

(i)	Check whether the function is even or odd: $g(x) = \dfrac{sinx + cosx}{cos^2 x}$.
(ii)	Find the limit of : $\lim\limits_{u \to 1} \left(\dfrac{u^4 - 1}{u^3 - 1} \right)$.
(iii)	Find derivative of f(x) if : $f(x) = \sqrt{\dfrac{x^2 - 1}{x^2 + 1}}$.
(iv)	Find $\dfrac{dy}{dx}$ if $y = \dfrac{1}{s}(2x^{\frac{3}{4}} + \dfrac{1}{m} 2x^{-\frac{1}{2}} + n)$. Where s, m, n are constants
(v)	Show that the given function f(x) is continuous for all real values of x $f(x) = x^5 + 2x^3 - 6x + 8$.
(vi)	Evaluate the Integral $\int \left(\dfrac{(e^{3x} - e^{-2x})}{e^{-x}} \right) dx$.

Q.2.   Solve the following. (5x6=30)

1.	Evaluate the limit : $\lim\limits_{x \to 4} \left(\dfrac{4-x}{5 - \sqrt{9+x^2}} \right)$.
2.	Evaluate the given Integral $\int x^3 lnx \, dx$.
3.	Solve the Inequality: $\left\| \dfrac{3x-10}{5-x} \right\| \leq 5$.
4.	Evaluate the integral $\int t^3 sint \, dt$.
5.	Find derivative $\dfrac{dy}{dx}$ by using chain rule : $y = tanx$, $x = \dfrac{-5t^2}{4}$.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Solve the following.   (5x6=30)

i.   Find $\frac{dy}{dx}$ if $\sin xy - e^{xy} - x^2 y = 0$

ii. Find parametric equations, direction ratios and direction cosine for the straight line through the points $P(1, -2, 0)$ and $Q(5, -10, 1)$.

iii. Find spherical coordinate of the point whose rectangular coordinates are
a) $(1, 1, \sqrt{6})$ b) $(4, -4\sqrt{3}, 6)$

iv. Find the intercepts of the given surface $x^2 + 4y^2 + 5xz - 2x + y - 3 = 0$ on the coordinate axes.

v.   Evaluate $\int_0^1 \int_0^{x^2} xe^y \, dy dx$.

Solve the following.   (3x10=30)

Q.2 State and prove Divergence Theorem.

Q.3 Evaluate $\int_0^2 \int_0^1 \int_0^1 xyz\sqrt{2 - x^2 - y^2} \, dx dy dz$.

Q.4 Examine $f(x, y) = x^2 - xy + y^2 + 6x$ for relative extrema.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (10x3=30)

i.   Solve $\left|\frac{2t-5}{3}\right| = 4$.

ii. Find the limit $\lim\limits_{x\to+\infty} \left(1+\frac{1}{2x}\right)^{-x}$.

iii. Solve $\frac{6-x}{4} < \frac{3x-4}{2}$.

iv. Evaluate $\lim\limits_{x\to0} \frac{\sin 6x}{\sin 8x}$.

v.   If $f(x) = 3x^2 - 7x + 5$, what is the domain of function f. Also find $f(x+h)$.

vi. Find the derivative of $g(x) = \frac{7}{x^7} - 6x^{-8/3} + 8\sqrt{x}$ at $x = 1$.

vii. If $y = (x^3 + 1)\ln x$, find $\frac{dy}{dx}$.

viii. Evaluate $\int_{-1}^{1} \left(1 - \frac{t}{2}\right) dt$.

ix. Evaluate $\int \left(1 + \frac{1}{2y} - 3e^y\right) dy$.

x.   Find the values of x, if any, at which $h(x) = \frac{x^2-9}{x^2-5x+6}$ is not continuous.

Q.2.   Solve the following: (3x10=30)

1. Find the values of the constants a and b if the given function is continuous and differentiable at $x = \frac{\pi}{6}$,
$$f(x) = \begin{cases} \sin(2x), & 0 < x \le \frac{\pi}{6}; \\ ax + b, & \frac{\pi}{6} < x \le 1. \end{cases}$$

2. Find $\frac{dy}{dx}$ by implicit differentiation for the the curve $\ln(x^2 + y^2) = y^3$.

3. Evaluate $\int \frac{5x^2+9}{x\sqrt{x^2+16}} dx$.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Solve the following.   **(15x2=30)**

1.   Simplify $(-i)^{109}$.

2.   Find the multiplicative inverse of $-3-5i$.

3.   If $\frac{1}{a}, \frac{1}{b}, \frac{1}{c}$ are in G.P show that the common ratio is $\pm\sqrt{\frac{a}{c}}$.

4.   Find 9th term of A.P $\frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \ldots$

5.   Prove that $P_r^n = n\, P_{r-1}^{n-1}$

6.   Find the term involving x^4 in the expansion of $(3-2x)^7$.

7.   Using the binomial theorem, find the value of $\sqrt[4]{77}$ upto two decimal places.

8.   Evaluate $\lim\limits_{x\to3} \sqrt{x^2 + x + 4}$.

9.   Evaluate $\lim\limits_{x\to0} \frac{x}{\tan x}$.

10.   Differentiate with respect to x, $\frac{2x-3}{2x+1}$.

11.   Find $f'(x)$ if $f(x) = x^3 e^{\frac{1}{x}}$, $x \neq 0$

12.   Find $\frac{dy}{dx}$ $y = \frac{x}{\ln x}$.

13.   Evaluate $\int \sec^4 x\, dx$.

14.   Evaluate $\int e^x (\cos x + \sin x)dx$.

15.   Find the area between the x-axis and the curve $y = 4x - x^2$.

Q.2.   Solve the following.   **(3x10=30)**

1.   If $y = e^{ax} \sin bx$, show that $\frac{d^2y}{dx^2} - 2a\frac{dy}{dx} + (a^2 + b^2)y = 0$

2.   Evaluate the following definite integral,

$\int_0^{\frac{\pi}{4}} \frac{\sin x - 1}{\cos^2 x} dx$.

3.   If A and B are square matrices and AB=BA, then show by mathematical induction that $AB^n = B^n A$ for any positive integer n.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

Q.1.   Answer the following short questions.   **(6x5=30)**

سوال نمبر 1۔   مندرجہ ذیل سوالات کے مختصر جوابات تحریر کریں۔

English	Urdu
i. Risala Asbab-e- Baghawat-e- Hind	i۔ رسالہ اسباب بغاوت ہند
ii. Simon Commission	ii۔ سائمن کمیشن
iii. Refugee Crisis	iii۔ مسئلہ مہاجرین
vi. Bogra Formula	vi۔ بوگرہ فارمولا
v. Ch, Muhammad Ali	v۔ چوہدری محمد علی
vi. Kargil War	vi۔ کارگل جنگ

Q.2.   Answer the following questions   **(2x15=30)**

سوال نمبر 2۔   مندرجہ ذیل سوالات کے جوابات تحریر کریں۔

i.   Discuss the causes of the creation of Pakistan.

i۔   پاکستان کے قیام کے اسباب تحریر کریں

ii.   Discuss the geostrategic significance of Pakistan.

ii۔   پاکستان کی جغرافیائی اہمیت پر بحث کریں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: **(6x5=30)**

1. Briefly describe (i) Beats, (ii) Simple harmonic motion, (iii) Principle of superposition, (iv) Internal energy, (v) Travelling waves.

2. Derive an expression for the Joule-Thomson coefficient.

3. How would you elaborate that uniform circular motion is simple harmonic motion?

4. Describe the experimental procedure employed to measure the distributions of molecular speeds.

5. What is damped harmonic oscillation? Differentiate and graphically illustrate various types of damped motions.

6. Explain convection and radiation mechanisms of heat transfer.

Q.2.   Answer the following questions: **(3x10=30)**

1. Derive an expression for the power of a mechanical wave.

2. Discuss Doppler shift in the sound heard by the listener, when both source and listener of sound are in different relative states of motion.

3. Explain Carnot cycle and derive an expression for the efficiency of a Carnot engine.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: **(15x2=30)**

(1)-A uniform electric field of 1N/C is set up by a uniform distribution of charge in the xy-plane. What is the electric field intensity inside a metal ball placed 0.5m above the xy-plane?

(2)-What happens when a charged insulator is placed near an uncharged metallic object?

(3)- Give a comparison of a potential due to a point charge, dipole and quadruple.

(4)-What is work done in moving a 2µC charge on equipotential surface?

(5)-For a given potential difference does a capacitor can store more or less charge with a dielectric than it does without a dielectric?

(6)-What happens when a non-polar molecule is placed in an electric field?

(7)-What special characteristics must heating wire have?

(8)- Show that the product RC has dimensions of time.

(9)- Discuss the differences between Ampere's law and Gauss's law.

(10)-Write down formula for magnetic induction at center of a current loop of radius R and number of turns N. Whether magnetic is uniform at all points in space?

(11)-In Faraday's law of induction, does the induced emf depend on the resistance of the circuit? If so, how?

(12)-What is physical significance of the Poynting vector?

(13)-How do you distinguish between ϵ_0 and μ_0 ? How are they related with velocity of electromagnetic waves in free space?

(14)-Describe similarities between the energy stored in the electric field of a charged capacitor and the energy stored in the magnetic field of a current carrying coil.

(15)-A resistance R, an inductor L and a battery of emf ε form a series circuit. Apply loop theorem to this circuit so as to obtain the equation that speaks in terms of electric power.

Answer the following questions:

Q. 2: (a)-Using Gauss's law, find electric field intensity due to a uniform spherical charge distribution at a point outside the distribution.   **05 + 05**

(b)-Prove that in an electrostatic field $\vec{E}$, the potential difference between two points A & B is given by,

$$V_B - V_A = - \int_A^B \vec{E} . \overrightarrow{dr}$$

How will you define potential difference and potential at a point from this relation? What is unit of electric potential?

Q. 3: (a)-Find expression for capacitance of a cylindrical capacitor. Also find capacitance of cylindrical capacitor after introduction of a dielectric material between plates of capacitor.   **05 + 05**

(b)-Define current density and derive a relation for it in form, $\vec{j} = -ne\vec{v}_d$

Give physical significance of negative sign. Also derive a relation between current and current density in form,

$$i = \int_S \vec{j} \cdot \overrightarrow{da}$$

Q. 4: (a)-Derive an expression for the torque acting on a rectangular loop of wire carrying a current i, placed in a uniform magnetic field and capable of rotation about an axis perpendicular to the field.

(b)-Define Poynting vector? Find its value for a plane electromagnetic wave. Also, relate electromagnetic energy to intensity of wave.   **05 + 05**

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   **Answer the following short questions:**   **(6x5=30)**

i.   What is meant by International Relations?

ii.   Write down the nature of Political Science.

iii.   What is political Sovereignty?

iv.   Briefly define Nation in a few lines.

v.   What is the difference between Political Science and History?

vi.   Write down the formation of Executive.

Q.2.   **Answer the following questions.**   **(3x10=30)**

i.   Write a comprehensive note on the scope of political Science.

ii.   Discuss tangible elements of Power.

iii.   Write down the functions of Legislature.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Write short note on the following.   **(6x5=30)**

i.   What is the importance of visual aids?

ii.   Write a note on the explanatory details of a paragraph?

iii.   Define inference. What is its purpose?

iv.   What are the different parts of a formal letter?

v.   What is a resume?

vi.   What are the cohesive devices in paragraph?

Q.2. Answer the following questions   **(3x10=30)**

i.   Write a letter to Editor of a newspaper on SMOG.

ii.   Write an application to the Finance Manager of a Multinational Firm for the appointment of a Social Media Advisor.

iii.   Select ONE of the topics below and write a paragraph about it.

  a)   Energy Crisis in Pakistan

  b)   Global Warming

  c)   Courtesy

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   **(5x6=30)**

1. Scientific Society

2. Establishment of All India Muslim League.

3. Pirpur Report

4. Quit India Movement

5. Resignation of Congress Ministries (1939)

١۔   سائنٹیفک سوسائٹی

٢۔   آل انڈیا مسلم لیگ کا قیام

٣ ۔   پیر پور رپورٹ

٤۔   ہندوستان چھوڑ دو تحریک

٥۔   کانگریسی وزارتوں کا استعفی (1939)

   Answer the following questions.   **(2x15=30)**

Q. No. 2. Explain in detail the relations between Pakistan and China.

سوال نمبر 2۔ پاکستان اور چین کے تعلقات تفصیل سے بیان کریں۔

Q. No. 3. Write down the salient features of the 1973 Constitution of Pakistan?

سوال نمبر 3۔ 1973ء کے آئین کے خدوخال بیان کریں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   **(6x5=30)**

i. Discuss different sources of Law in detail.
ii. Explain the relationship between rights and duties of a citizen.
iii. Explain the kinds of constitution.
iv. How rule of law is important for the smooth functioning of a state?
v. Discuss the functions of Democracy.
vi. Discuss the merits of Federation.

Q.2.   Answer the following questions.   **(3x10=30)**

i. Describe the characteristics and functions of political system.
ii. Discuss merits and demerits of Presidential form of government.
iii. Define the term "Constitution". Discuss the sources in detail. Also briefly describe the major amendments (any three from 1973 constitution of Pakistan).

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions. **(6x5=30)**

i. Explain the function of a political party in shaping public opinion.

(الف) رائے عامہ کی تشکیل میں سیاسی جماعت کے کردار کی وضاحت کریں-

ii. How do interest groups influence government policy?

(ب) مفاد پرست گروہ حکومتی پالیسی پر کیسے اثر انداز ہوتے ہیں ؟

iii. What are the key elements of an effective public opinion?

(ج) ایک موثر رائے عامہ کے اہم عناصر کیا ہیں ؟

iv. What is the difference between two-party and multiple-party systems?

(د) دو پارٹی سسٹم اور ایک سے زیادہ پارٹی سسٹم میں کیا فرق ہے ؟

v. What does political feminism mean?

(ہ) سیاسی حقوق نسواں سے کیا مراد ہے ؟

vi. Explain the key principles of socialism briefly.

(و) سوشلزم کے اہم اصولوں کو مختصراً بیان کریں-

Q.2.   Answer the following questions. **(3x10=30)**

i. Analyze the ideology of fascism and its main components.

(الف) فاشزم کے نظریے اور اس کے اہم اجزا کا تجزیہ کریں-

ii. Explain the electoral process, describe various forms of representation and identify key components for fair elections.

(ب) انتخابی عمل کی وضاحت کریں، نمائندگی کی مختلف اقسام بیان کریں اور منصفانہ انتخابات کے لیے اہم اجزا کی نشاندہی کریں-

iii. Describe the concept of nationalism and its key aspects.

(ج) قوم پرستی کے تصور اور اس کے اہم پہلوؤں کو بیان کریں-

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   **(6x5=30)**

1. Write a note on the advantages of Law
2. Explain substantive and procedural Law
3. What are the purposes of Law?
4. Write a note on Sunnah as a source of Islamic Law
5. Differentiate between Islamic and Secular Law
6. What is the scope of Law?

Q.2.   Answer the following questions.   **(3x10=30)**

1. Define Law and give its sources
2. Describe the territorial nature of Law
3. Write a note on Law and morality

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   **(6x5=30)**

1. Define communication with help of an example.

ایک مثال کی مدد سے مواصلات کی تعریف کریں۔

2. How important is feedback in the process of communication?

مواصلات کے عمل میں رائے کتنی اہم ہے؟

3. What is meant by agenda setting?

ایجنڈا کی ترتیب سے کیا مراد ہے؟

4. Describe the periodical with help of an example.

ایک مثال کی مدد سے رسالہ کی وضاحت کریں۔

5. What is meant by noise in the process of communication?

مواصلات کے عمل میں شور سے کیا مراد ہے؟

6. Differentiate between interpersonal communication and intrapersonal communication.

انٹرپرسنل کمیونیکیشن اور انٹرا پرسنل کمیونیکیشن کے درمیان فرق کریں۔

Q.2.   Answer the following questions.   **(3x10=30)**

1) Out of all the functions of mass communication, which one you deem the most important and why? Explain your answer with help of examples.

ابلاغ عامہ کے تمام افعال میں سے، آپ کس کو سب سے اہم سمجھتے ہیں اور کیوں؟ مثالوں کی مدد سے اپنے جواب کی وضاحت کریں۔

2) Is print media becoming less important in the age of broadcast media? Give your opinion.

کیا براڈکاسٹ میڈیا کے دور میں پرنٹ میڈیا کی اہمیت کم ہوتی جا رہی ہے؟ اپنی رائے دیں۔

3) Write in detail about types of broadcast media production.

براڈکاسٹ میڈیا پروڈکشن کی اقسام کے بارے میں تفصیل سے لکھیں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کا پی پر حل کریں۔

Q.1.   Answer the following short questions. (5x6=30)

سوال نمبر 1۔   مندرجہ ذیل سوالات کے مختصر جوابات تحریر کریں۔

i. Mujaddid Alf Sani

i۔ مجدد الف ثانی

ii. Delhi Proposals

ii۔ تجاویز دہلی

iii. Sir Zafarullah Khan

iii۔ سر ظفر اللہ خان

iv. Moulvi Tamzeez ud Din

iv۔ مولوی تمیز الدین

v. Third Martial Law (1977)

v۔ تیسرا مارشل لاء (1977)

vi. Benazir Bhutto

vi۔ بے نظیر بھٹو

Answer the following questions (2x15=30)

مندرجہ ذیل سوالات کے جوابات تحریر کریں۔

Q. No. 2. Discuss Sir Syed Ahmad Khan's educational and political services for the Muslims.

سوال نمبر 2۔ مسلمانوں کے لئے سر سید احمد خان کی تعلیمی و سیاسی خدمات پر بحث کریں۔

Q. No. 3. Explain the salient features of Pakistan's foreign policy.

سوال نمبر 3۔ پاکستان کی خارجہ پالیسی کے نمایاں خد و خال بیان کریں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

Q.1.   Write short note on the following.   (5x6=30)

سوال نمبر1۔   مندرجہ ذیل پر مختصر نوٹ تحریر کریں۔

I. COD stands for…?	I ۔ سی اوڈی کس چیز کا مخفف ہے؟
II. 8th Amendment in 1973 Constitution	II 1973 کے آئین میں آٹھویں ترمیم
III. Khawaja Nazimuddin	III خواجہ ناظم الدین
IV. Liaquat-Nehru Pact	IV۔ لیاقت نہرو معاہدہ
V. Line of Control	V۔ لائن آف کنٹرول

Answer the following questions   (2x15=30)

مندرجہ ذیل سوالات کے جوابات تحریر کریں۔

Q. No. 2. What do you know about Sir Syed Ahmad Khan and his Aligarh Movement?

سوال نمبر2۔ آپ سر سید احمد خان اور ان کی علی گڑھ تحریک کے بارے میں کیا جانتے ہیں؟

Q. No. 3. Write a note on 1973 constitution.

سوال نمبر3۔ 1973 کے آئین پر نوٹ لکھیں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Define the following with examples.   (6x5=30)

1.   What is the significance of the discipline of Sociology?

2.   Describe the importance of sports in socializing individuals.

3.   What do you mean by Subculture?

4.   Give a brief definition of deviance.

5.   What do you mean by Socialization

6.   What do you mean by a Social Problem?

Q.2.   Answer the following questions.   (3x10=30)

1.   Briefly describe how sports may minimize social evils among youth in Pakistan.
2.   Critically analyze the role of politics in sports.
3.   Give a sociological analysis of sports in reducing violence.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions.   (6x5=30)

   i. Write down properties of binomial distribution.

   ii. Explain the difference between point estimation and interval estimation.

   iii. What is sampling and non-sampling error.

   iv. Distinguish between Null and alternative hypothesis.

   v. Distinguish between Type I-Error and Type II- Error.

   vi. Discuss the testing procedure of testing of hypothesis that two criteria of classification are independent.

     Answer the following questions.   (3x10=30)

Q.2 (a) If $f(x) = \dfrac{6-|7-x|}{36}$ for x= 2,3,4,..,12 then find mean and variance of the random variable X.

(b) The names of 5 men and 5 women are written on slips of paper and placed in a box. Four names are drawn. What is the probability that 2 are men and two are women?

Q.3 (a) A random variable X is normally distributed with mean=12 and variance=4, find the area under the curve

     a) $P(X<92.5)$ b) $P(X>124)$

(b) The heights of college male students are known to be normally distributed with a mean of 67.39 inches and $\sigma = 1.30$ inches. A random sample of 100 students showed a mean height of 67.47 inches. Using a 0.05 level of significance, test the hypothesis $H_o: \mu = 67.39$ against the alternative $H_1: \mu > 67.39$.

Q.4 (a) A poll is taken among the residents of a city and the surrounding country to determine the feasibility of a proposal to construct a civic centre. If 2400 of 5000 city residents favour the proposal and 1200 of 2000 country residents favour it, find a 95% confidence interval for the true difference in the proportions favouring the proposal to construct the civic centre.

(b) A thousand households are taken at random and divided into three groups A, B and C, according to the total monthly income. The following table shows the numbers in each group having a colour television receiver, a black and white receiver or no television at all.

	A	B	C
Colour television	56	51	93
Black and white	118	207	375
None	26	42	32

Test the hypothesis that there is no association between total income and television ownership.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   (15x2=30)

i. Define independent events. Give example.

ii. What is a random experiment?

iii. Differentiate between classical and empirical probability.

iv. If A and B are two independent events with P(A)=0.5 and P(B)= 0.4, P(A∩ B)=0.2, find P(A|B).

v. State general addition law of probability of two events A and B.

vi. Distinguish between permutation and combination.

vii. Define a discrete random variable and discrete probability distribution.

viii. State two conditions that must be satisfied by a probability density function.

ix. Define distribution function its properties.

x. Let X is binomially distributed with mean 6 and variance 2, find P(X=5).

xi. Describe the condition hypergeometric distribution tends to binomial distribution.

xii. Using binomial distribution, find probability of 3 successes in 7 trials when p=0.6.

xiii. Find the mean of binomial distribution $(q + p)^3$.

xiv. Define hypergeometric distribution.

xv. State 3 properties of Normal distribution.

Answer the following question.   (6x5=30)

Q.2 Of 12 eggs in a refrigerator, 2 are bad. From these, 4 eggs are chosen at random to make a cake. What is the probability that there are (i) no bad egg, (ii) at least one bad egg?

Q.3 Let X be a random variable with probability distribution

$$f(x) = \binom{3}{x}\left(\frac{1}{4}\right)^x \left(\frac{3}{4}\right)^{3-x}, x = 0,1,2,3.$$

Find E(X) and Var(X).

Q.4 What is the probability that a poker hand (5 cards) will contain exactly 3 aces?

Q.5 Two hundred passengers have made reservations for an airplane flight. If the probability that a passenger who has a reservation will not show up is 0.01, what is the probability that exactly three will not show up?

Q.6 A lawyer commutes daily from suburban home to his mid-town office. On the average, the trip one way takes 24 minutes with a standard deviation of 3.8 minutes. Assume the distribution of trip times to be normally distributed. What is the probability that trip will take at least ½ hour?

Q.7 A normal distribution has mean=50 and standard deviation = 5, find

i.   P (0 < X < 40)

ii.   P (55 < X< 100)

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   **Answer the following short questions.**   **(5x6=30)**

   i.   Write down properties of normal distribution.

   ii.   Differentiate between sample and population.

   iii.   Distinguish between Null and alternative hypothesis.

   iv.   Distinguish between Type I-Error and Type II- Error.

   v.   Discuss the testing procedure of testing of hypothesis that population mean with a known population standard deviation.

       Answer the following questions.   **(3x10=30)**

Q.2 (a) The experience of certain house agent indicates that he can provide suitable accommodation for 75% of the clients who come to him. If on a particular occasion, 6 clients approach him independently, calculate the probability that (i) less than 4 clients, exactly 5 clients.

   (b) A normal distribution has zero mean and standard deviation =0.6, find

     i. $P(X > 0)$

     ii. $P(0.2 < X < 1.8)$

Q.3 (a) A poll is taken among the residents of a city and the surrounding country to determine the feasibility of a proposal to construct a civic centre. If 2400 of 5000 city residents favour the proposal and 1200 of 2000 country residents favour it, find a 95% confidence interval for the true difference in the proportions favouring the proposal to construct the civic centre.

   (b) It is claimed that an automobile is driven on average no more than 12000 miles per year. To test this claim, a random sample of 100 automobile owners are asked to keep a record of the miles they travel. Would you agree with the claim if the random sample showed an average of 12500 miles and a standard deviation of 2400 miles?

Q.4 (a) The following table gives the census data of orchards. Test the hypothesis that the two variables of classification are independent.

Classes	Shaded	Unshaded	Total
High Yielders	350	205	555
Low Yielders	250	195	445
Total	600	400	1000

   (b) Determine the yields of the process with four treatments are given: The completely randomized block design is used to test the hypothesis that all three levels of feeding are same.

	Treatments		
1	**2**	**3**	**4**
11	6	8	14
4	4	6	27
4	3	4	8
5	6	11	18

Use a 5% level of significance, test the hypothesis that no difference exists among the four treatments.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. **Answer the following short questions:**   (6x5=30)

1. What do you understand by the term measure of central tendency? Name different types.
2. Differentiate between descriptive and inferential statistics.
3. What is difference between absolute and relative dispersion?
4. Differentiate between simple and composite index numbers.
5. Define random variables and what are its various types?
6. Differentiate between regression and correlation.

Answer the following questions: (3x10=30)

Question 2: Compute median and mode for the following data

Classes	23	45	67	77	81	83	86	92	98
Frequency	10	4	3	18	12	42	15	10	2

Question 3: Calculate the correlation coefficient. Also fit a regression line Y on X from the following data.

Amount of Petrol (X)	10	20	30	40	50	60
Distance Travel (Y)	57	59	67	75	84	97

Question 4: The following are three consecutive weeks earning of three salesmen employed by a given firm

Salesmen		
A	B	C
152	181	160
175	171	130
180	203	124

Test at 5% level of significance whether differences between salesmen are significant using Analysis of Variance (ANOVA).

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions.   (5x6=30)

1) Describe the Role of Government in circular flow model.
2) Explain the concept of Shortage in market equilibrium.
3) Explain the effect of the Rising Price on the Demand Curve with the help of graph.
4) Define and explain the Labor Participation Rate.
5) Briefly explain the Cost-Push Inflation.

Answer the following questions.   (2x15=30)

Question No.2

Discuss and compare features of Perfect Competition with Imperfect Competition.

Question No.3

Write a comprehensive note on GDP. Explain its various components and possible ways to improve the real GDP of Pakistan.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

سوال نمبر 1: درج ذیل سوالات کے جوابات تحریر کیجیے۔   (6x5=30)

i.   ”ذَهَبَ“ سے فعل ماضی معروف کی گردان لکھیے۔

ii. مرکب توصیفی کی تعریف لکھیے اور تین عربی مثالیں لکھیے۔

iii. جملہ فعلیہ کی تعریف لکھیے اور تین عربی مثالیں لکھیے۔

iv. اسم، فعل اور حرف کی دو دو عربی مثالیں لکھیے۔

v.   خَتَمَ اللهُ عَلىٰ قُلُوْبِهِمْ و علىٰ سَمْعِهِمْ و علىٰ اَبْصَارِهِمْ غِشَاوَةٌ وَّلَهُمْ عَذَابٌ عَظِيْمٌ (اردو میں ترجمہ کیجیے)

vi. قَالَ رَسُوْلُ اللهِ صلى الله عليه وسلم مَنْ كَانَ يُؤْمِنُ بِاللهِ وَالْيَوْمِ الآخِرِ فَلَا يُؤْذِ جَارَهُ وَ مَنْ كَانَ يُؤْمِنُ بِاللهِ واليوم الآخِرِ فَلْيُكْرِمْ ضَيْفَهُ و مَنْ كَانَ يُؤْمِنُ بِاللهِ وَالْيَوْمِ الآخِرِ فَلْيَقُلْ خَيْراً أَوْ لِيَصْمُتْ (اردو میں ترجمہ کیجیے)

درج ذیل سوالات کے جوابات تحریر کیجیے۔   (3x10=30)

سوال نمبر 2: ضمائر منفصلہ کو عملی طور پر استعمال کرتے ہوئے تمام صیغے لکھیے۔

سوال نمبر 3: حروف جارہ کو عربی مثالوں میں استعمال کر کے لکھیے۔

سوال نمبر 4: واحد، تثنیہ اور جمع سے کیا مراد ہے ہر ایک کی دو دو عربی مثالیں لکھیے۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

اس پرچہ کو مہیا کی گئی جوابی کاپی پر حل کریں۔

سوال نمبر1:   مختصر ترین جواب تحریر کیجئے۔ جواب دو سطروں سے زیادہ نہ ہو۔   (15x2=30)

1. اردو میں فارسی سے آمدہ دو الفاظ لکھئے۔

2. پنجابی سے اردو زبان کا گہرا رشتہ کس محقق نے اپنی کس کتاب میں بیان کیا ہے؟

3. بھ ۔ ت ۔ ڈ ۔ اور د میں سے کون سے حروفِ تہجی اردو، فارسی اور عربی میں مشترک ہیں؟

4. کوئی سے دور سوم الخط کے نام لکھئے اردو جن میں تحریر کی جاسکتی ہے؟

5. ترجمہ کی دو قسموں کے نام لکھئے۔

6. فن ترجمہ نگاری پر کسی ایک اردو کتاب اور اس کے مصنف کا نام لکھئے۔

7. ادبی ترجے کی دو خصوصیات لکھئے۔

8. مکالمہ کی تعریف کیجئے۔

9. 'تیز قدم ہونا' اور 'ناک میں دم کرنا' کو جملوں میں استعمال کیجئے۔

10. انٹرویو کے دو مقاصد لکھئے۔

11. اصطلاح کی تعریف کیجئے۔

12. 'یات' لاحقے سے بننے والی دو اصطلاحات لکھئے۔

13. "بندر کی بلا طویلے کے سر" کا مفہوم لکھئے۔

14. جملے کے دو اہم حصوں کے نام لکھئے۔

15. محاورہ کسے کہتے ہیں؟

سوال نمبر2:   درج ذیل سوالات کے جامع جواب تحریر کریں۔   (3X10=30)

(الف): کسی بھی زبان میں ترجمہ نگاری کی کیا اہمیت ہے، اظہار خیال کریں۔

(ب): ملکی امن و امان کی صورت حال پر دو دوستوں کے درمیان مکالمہ تحریر کریں۔

(ج): انٹرویو کیا ہوتا ہے؟ انٹرویو کے بنیادی اصولوں کو ضبط تحریر میں لائیں۔

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.　Answer the following short questions:　　　　　　(5x6=30)

i.　Describe Mammlian glands ?
ii.　Describe types of feather in birds?
iii.　Write a note on testudines?
iv.　Describe and draw the life history of sea lamprey ?
v.　Describe the phylogenetic relationship of chordata ?

Q.2.　Answer the following questions:　　　　　　(3x10=30)

1. Write down in detail the support and locomotion in amphibians.

2. Describe in detail the class enteropneusta with diagram.

3. Explain with diagram the relationship of echinodermata to other animals.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: **(6x5=30)**

    i.   Write shortly phylogenetic considerations of hemichordates.
    ii.   Write a note on vertebrate's success in water.
    iii.   Write a short note on osmoregulation and excretion in amphibians.
    iv.   Adaptation in external structures of mammals.
    v.   Briefly explain migration and navigation in birds.
    vi.   How mammals were adopted with the external structure developments and locomotion?

Answer the following questions: **(3x10=30)**

Q. 2 What are the evolutionary perspective and relationship of echinoderms with other vertebrates.

Q. 3 Briefly explain reproduction and development of Chelonia, Squamata, Rhynchocephalia and crocodilian.

Q. 4 How mammals were adopted with the external structure developments and locomotion?

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.　Answer the following short questions:　　　　　(15x2=30)

i.　Write down development of in any member of Osteichthyes.
ii.　What is endothermy?
iii.　What is pelage?
iv.　Which animal group is valid sister group of phylum chordata? .
v.　Differentiate between agnathostomata and gnathostomata.
vi.　How modern birds are diverse?
vii.　How do crocodiles reproduce?
viii.　Write down classification of protochordates.
ix.　Write interesting facts about order Anura.
x.　What is Phylogenetic relationship?
xi.　What is alula and what is its function in flight?
xii.　What is scoliodon?
xiii.　Briefly describe the temprature regulation amphibians?
xiv.　What is viviparity, give example.
xv.　Write down dental formula of human?

Q.2.　Answer the following questions:　　　　　(3x10=30)

1. Write down the structure, anatomy and organ systems of Acron worms.

2. Describe migration and navigation.

3. Write down the characteristics of order squamata and crocodilia.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions: (15x2=30)

i. Which group of animals is called First amniotes?
ii. What is pantaradial symmetry?
iii. Why lophophorate are known as lesser-known invertebrates?
iv. Write down the name of different classes of echinodermata?
v. What are features of amniotic eggs?
vi. Which phylum is named after the notochord?
vii. What is endostyle?
viii. Why early mammals were considered nocturnal?
ix. What is major function of avian pineal gland?
x. Describe briefly about the relationship between members of the three chordate subphyla?
xi. In which class fins with muscular lobes and lungs used in gas exchange?
xii. Which group of animals contains only living amphibians?
xiii. Write down dental formula of human and beaver.
xiv. What is endothermy?
xv. Differentiate between bony and cartilaginous fishes.

Q.2. Answer the following questions: (3x10=30)

1. Write in detailed about the water vascular system of echinodermata.

2. How do birds migrate and navigate?

3. Explain indetail the dentition in mammals.

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (6x5=30)

i.   Briefly discus the similarities between Prokaryotic and Eukaryotic Cells.
ii.   What is osmotic pressure. Discuss hyperosmotic and hypoosmotic solutions.
iii. Crossing over during meiosis and its benefits
iv.   Function of centrioles
v.   Cargo protein working with Microtubules
vi.   Structure of nuclear envelop

Q.2.   Answer the following questions: (3x10=30)

i.   Write a note on structure and function of mitochondria with reference to oxidative phosphorylation and generation of ATPs.
ii.   Write a note on process of cell division i.e. mitosis. Explain the stages of Mitosis with reference to changes that happen with the chromosomes.
iii. What are ribosomes. Explain the structure and function of Ribosomes.