

BURNPUR RIVERSIDE SCHOOL, CHITTARANJAN
HALF-YEARLY EXAMINATION : (2025-2026)
ACCOUNTANCY
CLASS: XII

Time: 3 Hours

Maximum Marks: 80

Name: _____ Sec.: _____ Roll No.: _____

General Instructions:

- (i) This paper has 34 questions all questions are compulsory
- (ii) Marks are indicated against each question.
- (iii) Question 1-20 carry 1 mark.
- (iv) Question 21-26 carry 3 marks.
- (v) Question 27-29 carry 4 marks.
- (vi) Question 30-34 carry 6 marks.
- (v) Attempt all parts of the questions together.

1. If any loan or advance is provided by partner then balance of such loan amount should be transferred to: 1
a) B/S Asset Side b) B/S Liability Side c) Partners Capital A/C d) Partners Current A/C
2. Tangible assets of the firm are ₹14,00,000 and outside liabilities are ₹41,00,000. Profit of the fund is ₹1,50,000 and normal rate of return is 10%. The amount of capital employed will be: 1
a) 10,00,000 b) 1,00,000 c) 50,000 d) 20,000
3. A and B are partners in a firm sharing profits and losses in the ratio of 2:3. C is admitted for 1/5 share in the profits of the firm. If C gets it wholly from it, the new profit sharing ratio after C's admission will be: 1
a) 1:3:3 b) 3:1:1 c) 2:2:1 d) 1:3:1

OR

A and B are partners sharing profit or loss in the ratio of 4:1. A surrenders 1/4 of his share and B surrenders 1/2 of his share in favour of C, a new partner. What will be the C's share?

- a) 3/4 b) 1/5 c) 1/10 d) 3/10
4. Match the following and choose the correct option: 1

COLUMN A	COLUMN B
A) Profit or loss on revaluation	i) Sacrificing Ratio
B) Retirement of a partner	ii) Old Ratio
C) Increase in liabilities	iii) Loss
D) Admission of a partner	iv) Gaining Ratio

- a) A-(i), B-(iii), C-(iv), D-(ii) b) A-(ii), B-(iv), C-(iii), D-(i)
- c) A-(i), B-(iv), C-(ii), D-(iii) d) A-(ii), B-(iii), C-(i), D-(iv)
5. In the absence of partnership deed the following rule will apply: 1
a) No interest on capital
b) Profit sharing in capital
c) Profit based salary to working partner.
d) 9% p.a interest on drawings

OR

If a fixed amount is withdrawn by a partner in the middle of every month, interest on the total amount is charged for _____ months.

- a) 6 b) 6½ c) 5½ d) 12
6. Capital employed by a partnership firm is ₹5,00,000. Its average profit is ₹60,000 the normal rate of return in similar type of business is 10%. What is the amount of super profits? 1
a) ₹50,000 b) ₹10,000 c) ₹6,000 d) ₹16,000
7. Assertion **(A)**: Assets are revalued and liabilities are reassessed in case of dissolution of partnership Reason **(R)**: A revaluation account is prepared on dissolution of partnership and gain or loss on revaluation is distributed between the partners. 1
a) Both **(A)** and **(R)** are correct and **(R)** is the correct reason of **(A)**.
b) Both **(A)** and **(R)** are correct and **(R)** is not the correct reason of **(A)**.
c) Only **(R)** is correct.
d) Both **(A)** and **(R)** are wrong.

8. Rian and Vihan Associates is having three partners named as Rakesh, Vinay and Sanjana, their capitals were ₹4,00,000 and ₹2,40,000 and ₹1,60,000 respectively. Sanjana retired on March 31st, 2023, and sold her share of profits by taking ₹30,000 from Rakesh and ₹20,000 from Vinay. Determine the new ratio.
a) 1:1 b) 7:8 c) 3:2 d) 8:7
OR
A, B and C share profits and losses of the firm equally. B retires from business and his share is purchased by A and C in the ratio of 2:3. New profit sharing ratio between A and C respectively would be:
a) 1:1 b) 2:2 c) 7:8 d) 3:5
9. Maximum number of members in a private company is:
a) 7 b) 200 c) 20 d) No Limit
10. Assertion **(A)**: Debenture is a part of Ownership Capital. As such a company can issue debentures with voting rights.
Reason **(R)**: Debenture holders are not members of the company
a) Both **(A)** and **(R)** are correct and **(R)** is the correct reason of **(A)**.
b) Both **(A)** and **(R)** are correct but **(R)** is not the correct reason of **(A)**.
c) Only **(R)** is correct.
d) Both **(A)** and **(R)** are wrong.
11. X Ltd. forfeited 1000 shares of ₹10 each for non-payment of final call of ₹3 each. After reissue of 600 of these shares, ₹3000 were transferred to capital reserve. Shares were reissued for-
a) ₹1,200 b) ₹4,800 c) ₹3,600 d) ₹4,000
OR
As per Section 52 of Companies Act 2013, securities premium cannot be utilized for:
a) Issue of fully paid bonus shares
b) Writing off capital losses
c) Writing off discount on issue of securities
d) Writing of preliminary expenses
12. A, B and C are partners, their partnership deed provides for interest on drawings at 8% per annum. B withdrew a fixed amount in the middle of every month and his interest on drawings amounted to ₹4,800 at the end of the year. What was the amount of his monthly drawings?
a) ₹10,000 b) ₹5,000 c) ₹1,20,000 d) ₹6,60,000
13. X and Y are partners in a firm sharing profits in the ratio of 3:2. Z is admitted as a partner. Calculate sacrificing ratio if new profit sharing ratio is 9:7:4.
a) 3:1 b) 3:2 c) 1:3 d) 9:7
OR
Hema and Tara were partners in a firm sharing profits and losses in the ratio of 2:3. They admitted Ojas as a new partner. Hema surrendered 1/3rd of her share and Tara surrendered 1/2 of his share in favour of Ojas. The new profit-sharing ratio of Hema, Tara and Ojas will be:
a) 8:9:13 b) 3:2:5 c) 2:3:5 d) 2:3:25
14. Cash balance shown in the balance sheet is shown on dissolution of firm in:
a) Realisation account b) Cash account c) Capital account d) None of the accounts
15. Kalki and Kumud were partners sharing profits and losses in the ratio of 5:3. On 1st April, 2021 they admitted Kaushtubh as a new partner and new ratio was decided as 3:2:1. Goodwill of the firm was valued at ₹3,60,000. Kaushtubh could not bring any amount for goodwill. Amount of goodwill share to be credited to Kalki and Kumud accounts will be:
a) ₹37,500 and ₹22,500 respectively.
b) ₹30,000 and ₹30,000 respectively.
c) ₹36,000 and ₹24,000 respectively.
d) ₹35,000 and ₹15,000 respectively.
16. Match the following and choose the correct option.
- | COLUMN A | COLUMN B |
|---------------------------------|----------|
| A) Interest in calls in arrears | i) 12% |
| B) Interest in calls in advance | ii) 10% |
| C) Interest on Partners loan | iii) 6% |
- a) A-(ii), B-(i), C-(iii) b) A-(iii), B-(i), C-(ii)
c) A-(i), B-(iii), C-(ii) d) A-(ii), B-(iii), C-(i)

17. Sarita Limited issued 5000, 8% debentures of ₹100 each at certain rate of premium and to be redeemed at 10% premium. At the time of writing off loss on issue of debentures, statement of profit and loss was debited with ₹2,00,000. At what rate of premium these debentures were issued?
 a) 10% b) 16% c) 6% d) 4%

OR

Debentures issued as collateral security will be debited to:

- a) Bank Account b) Debentures suspense Account
 c) Debenture Account d) Bank loan Account
18. On the date of dissolution, the firm had debtors amounting for ₹3,00,000 and provision for doubtful debt of ₹30,000. Debtors for ₹20,000 proved bad and the remaining debtors realized 90%. Amount realized from debtors will be:
 a) ₹3,00,000 b) ₹2,25,000 c) ₹2,80,000 d) ₹2,52,000
19. A, B and C are sharing profits and losses in the ratio of 2:2:1. The capital balance are ₹50,000 for A, ₹70,000 for B, ₹35,000 for C. B decided to retire from the firm and balance in reserve on the date was ₹25,000. If goodwill of the firm was valued at ₹30,000 and profit on revaluation was ₹7,500 then, what amount will be payable to B?
 a) ₹70,820 b) ₹76,000 c) ₹75,000 d) ₹95,000
20. Rupa and Daya were partners in a firm they admitted Naveen as a new partner for 1/3rd share in the profits. On Naveen's admission it was found that there was a claim against the firm for damages for which a liability for damages should be credited. Which of the following accounts will be debited for creating the liability?
 a) Profit and loss appropriation account b) Profit and loss account
 c) Revaluation account d) Realisation account
21. A, B and C are partners in a firm sharing profits in 2:2:1. Their capitals as on 1st April 2023, were ₹6,00,000, ₹5,00,000, ₹4,00,000 respectively. After the distribution of net profit of ₹3,60,000 for the year ended 31st March 2024, it was discovered that the following transactions were not taken into account:
 a) Interest on capital at the rate 5% per annum
 b) Salary to A ₹10,000 per month and to C ₹5000 per month.
 You are required to give necessary rectifying entries using P & L adjustment account.
22. The capital of the firm of Anuj and Benu is ₹10,00,000 and market rate of interest is 15%. Annual salary to the partner is ₹60,000 each. The profit for the last three years were ₹2,80,000, ₹3,80,000 and ₹4,20,000. Goodwill of the firm is to be valued on the basis of two years purchase of last three years average super profits. Calculate the goodwill of the firm.
23. A, B, C and D were partners in a firm sharing profits and losses in the ratio of 3:2:1:4. A decides to retire from the firm and his share is acquired by B and C in the ratio of 3:2 accordingly to agreement. Calculate the new profit-sharing ratio and gaining ratio.

OR

A, B, C and D were partners in a firm sharing profits and losses in the ratio of 4:3:2:1. The firm closes its books on 31st March every year. On 31st March 2022, D retired and his share was taken over by A, B and C in the ratio of 2:3:4.

Calculate the new profit sharing ratio of the remaining partners after D's retirement.

24. On 1.1.2024 X Ltd, received in advance the first call of ₹2 per share on 10,000 equity shares. The first call was due on 15-02-2024.
 Journalise the above transactions and transfer the advance to first call account by opening a calls-in-advance account.
25. Calculate the rate of interest on drawings in the following cases:
 i) A and B are partners in a firm. A withdrew ₹50,000 per month in the beginning of each month and interest on drawings was calculated at ₹2,925 at the end of the year.
 ii) C and D are partners in a firm. C withdrew ₹15,000 per quarter in the beginning of each quarter and interest on drawings was calculated at ₹4,500 at the end of the year.
26. Prakash Ltd purchased assets worth ₹2,20,000 and also took over the liabilities (creditors) of ₹40,000 of Ajay Ltd. for a purchase consideration of ₹1,92,000. Prakash Ltd. paid the purchase consideration by issuing 10% debentures of ₹100 each at a premium of 20%.
 Pass necessary journal entries in the books of Prakash Limited.

OR

Disha Ltd. took over assets of ₹8,00,000 and liabilities of ₹3,00,000 from Kriti Ltd. for a purchase consideration of ₹6,00,000, the payment was made by issue of 9% debentures of ₹100 each at 20% premium.

Pass the necessary journal entries for the above transaction in the books of Disha Ltd.

27. P, Q and R sharing profits and losses in the ratio of 3:2:1, decided to share future profits and losses in the ratio of 4:3:2 with effect from 1st April 2024. Following is the extract of their balance sheet as at 31st March 2024. 4

Liabilities	₹	Assets	₹
Workman Compensation Reserve	60,000		

Show the accounting treatment under the following alternative cases

Case (i) : If claim on account of Workman's Compensation is estimate at ₹24,000.

Case (ii) : If claim in account of Workman's Compensation is estimated at ₹60,000.

Case (iii) : If a claim on account of Workman's Compensation is estimated at ₹75,000.

28. Ramesh, Mahesh and Suresh were partners in a firm sharing profits in the ratio of 3:3:2. Their respective fixed capitals where Ramesh ₹5,00,000, Mahesh ₹4,00,000, Suresh ₹3,00,000. They admitted Govind as a new partner for 1/5th share in the profits. Govind bought ₹4,00,000 as his capital and necessary amount for goodwill premium. Their new profit sharing ratio will be 2:1:1:1. Calculate the value of goodwill of the firm, showing your workings clearly. 4
- Pass necessary journal entries for the above transactions on Govind's admission.

OR

Abhay and Bina are partners in a firm. They admit Chetan as a new partner with ¼th share in the profits of the firm. Chetan brings ₹2,00,000 as his share of capital. The value of total assets of the firm is ₹5,40,000, and outside liabilities are valued at ₹1,00,000 on that date give the necessary general entry to record goodwill at the time of Chetan's admission. Also show your working notes

29. A and B shared profits in the ratio of 3:2. Their balance sheet as at 31st March 2024 was as follows: 4

Liabilities	₹	Assets	₹
Creditors	20,000	Cash at bank	7,000
Capital		Debtors	40,000
A - 1,50,000		Less: Provision for doubtful debts	<u>1,800</u>
B - 90,000	2,40,000	Stock	54,800
		Machinery	40,000
		Land and building	1,20,000
	2,60,000		2,60,000

Partners decided to dissolve the firm on the above date. Asset realised as follows:

Stock ₹45,000; machinery 20% less than book value, debtors ₹35,000, land and building ₹30,000 more than book value. Creditors agreed to accept 5% less. Expenses of realization of assets amounted to ₹1200.

Prepare the realisation account.

30. Jain and Gupta were partners sharing in profits in the ratio of 3:2. Their balance sheet as at 31st March 2022 was as follows: 6

Liabilities	₹	Assets	₹
Creditors	49,000	Cash	14,800
B/P	3,000	Debtors	20,500
Bank overdraft	17,000	Less: provision for bad debts	<u>300</u>
Reserve	15,000	Stock	44,000
Jain's capital	70,000	Plant	40,000
Gupta's Capital	60,000	Building	75,000
		Motor vehicles	20,000
	2,14,000		2,14,000

They agreed to admit Mishra for one 4th chair from 1st April 2022 subject to the following terms:

- Mishra to bring in capital of Jain and Gupta after all adjustments including premium for goodwill
- Building is undervalued by 25% and stock is overhauled by 10%
- Provision for bad debts on debtors to be raised to ₹1000
- A provision be made for ₹14,800 for outstanding legal charges.
- Mishra's share of goodwill or premium was calculated at ₹10,000 which is brought by him in cash.
- Bills payable of ₹10,000 issued to creditors were not recorded in the books.

Prepare Revaluation Account, Partners Capital Account.ss

31. A and B are partners sharing profits in the ratio of A- 5/10, B- 3/10 and transfer to reserve 2/10. Their balance sheet as at 31st March 2024 was as follows. 6

Liabilities	₹	Assets	₹
Sundry creditors	16,000	Cash at bank	10,800
Workman compensation reserve	9,600	Sundry debtors	20,000
Capital		Fixed assets	1,00,000
A : 80,000		Goodwill	15,000
B : 40,200	1,20,200		
	1,45,800		1,45,800

B died on 1st April, 2024. Besides his capitals and reserves, B's legal representatives are entitled to his share of goodwill, based on the total profits of last three years, which were ₹10,300; ₹15,000 and ₹13,600.

Assets are revalued as follows:

Fixed assets ₹1,20,000, ₹2000 out of debtors are bad and a provision of 5% is to be made for bad debts and 2% for discount on debtors.

Prepaid insurance is ₹490 and outstanding salaries ₹3000. There is an old typewriter not recorded in the books valued at ₹4000.

Prepare revaluation account and B's account to be rendered to his legal representatives.

32. X Limited invited applications for 2,00,000 shares of ₹10 each payable as follows: 6

₹3 on application; ₹2 on allotment, ₹3 on first call and ₹2 on second call.

Public applied for 3,00,000 shares and the allotments were made as under

To applicants..... for 80,000 sharesFull

To applicants..... for 1,60,000 shares.....1,20,000 shares

To applicants..... for 60,000 shares.....nil

All money were duly received

Pass journal entries.

OR

X Limited issued shares for ₹20,00,000 divided into shares of ₹10 each at a premium of ₹5 per share, payable as under

On application..... ₹4 per share

On allotment₹6 (including premium ₹3)

On first and final callBalance

Excess application money was to be adjusted against allotment and first and final call and the money on rejected applications was to be returned.

The issue was oversubscribed to the 80,000 shares and the allotment was made as follows:

Applicants of 1,00,000 shares for allotted 30% shares, Applicants for 10,000 shares were rejected and the remaining applicants were given full allotment.

All the money was duly received

Give journal entries.

33. Surya Ltd. issued 2500, 8% Debentures of ₹100 each at a discount of 10% payable as follows: 6
 ₹ 25 on application; ₹25 on allotment and the balance on First call.
 Applications were received for 2,000 debentures and the allotment was made. All the moneys were duly received. Expenses on issue of debentures amounted to ₹10,000. Pass the journal entries.(for first year only)
34. Following is the balance sheet of R and P as of 31st March 2024. 6

Liabilities	₹	Assets	₹
Capitals		Goodwill	4,000
R =16,000		Machinery	6,000
P =10,000	26,000	Plant	12,800
Reserves	3,600	Debtors	10,800
Workman compensation reserve	2,000	Less: Provision	800
Creditors	5,400	Bank	6,800
B/P	2,600		
	39,600		39,600

They decided to dissolve the firm, assets are realized as follows:

- Machinery 10% less than the book value; plant ₹12,500 and goodwill ₹2,520
- A is to take over debtors amounting to ₹6800 as ₹6000, remaining debtors were realized for 90% of the book value.
- One bill of ₹600 under discount, having been dishonoured has to be taken up by them.
- The bills payable of ₹2,600 to be assumed by P at that figure,
- Creditors are paid off at discount of 10%.
- An amount of ₹2,500 had to be paid for Workman compensation.
- The liquidation expenses amounted to ₹400.

You are requested to show the Realisations Account, Capital Account and Bank Account.

BURNPUR RIVERSIDE SCHOOL, CHITTARANJAN
HALF-YEARLY EXAMINATION: (2025-26)
BUSINESS STUDIES
CLASS:XII

Time: 3 Hours

Maximum Marks: 80

Name: _____ Sec.: _____ Roll No.: _____

General Instructions:

- (i) This paper has 34 questions. All questions are compulsory.
- (ii) Marks are indicated against each question.
- (iii) Answer should be brief and to the point.
- (iv) Answer to the questions carrying 3 marks may be from 50-75 words.
- (v) Answer to the questions carrying 4 marks may be about 150 words.
- (vi) Answer to the questions carrying 6 marks may be about 200 words.
- (vii) Attempt all parts of the questions together.

1. By the dimensions of the characteristics of management- "It is multi-dimensional", which specifies that the task of management is to make the strength of human resources effective and their weakness irrelevant towards achieving the organizations objectives 1
 - a) Management of work b) Management of people
 - c) Management of operations d) Management of goals

2. Match the following and choose the correct option: 1

Column A	Column B
A) Employees turnover should be minimized	i) Stability of personnel
B) Emphasis kindness and justice	ii) Equility
C) Chain of authority and communication from top to bottom	iii) Espirit de corps
D) Promote Steam spirit	iv) Scalar chain

 - a) A-(i), B-(ii), C-(iii), D-(iv)
 - b) A-(i), B-(iii), C-(ii), D-(iv)
 - c) A-(i), B-(ii), C-(iv), D-(iii)
 - d) A-(iii), B-(iv), C-(i) D-(ii)

3. _____ provides a rational approach for setting objectives and developing appropriate courses of action for achieving predetermined objectives 1
 - a) Directing b) Staffing c) Planning d) Controlling

4. Under which dimensions of business environment is online booking of air ticket included? 1
 - a) Legal dimension b) Economic dimension c) Technical dimension d) Social dimension

5. "It is a joint program of training in which educational institutions and business firms cooperate identify the method of training"- 1
 - a) Vestibule training b) Apprenticeship training c) Internship training d) Job rotation

6. Planning is performed at 1
 - a) Top Level b) Middle Level c) Supervising Level d) All Level

7. Management is always denoted by 'we' and not by 'I' because – 1
 - a) It is a process b) It is continuous c) It is a group activity d) It is tangible

8. **Statement I:** Controlling ensures that activities in a organization are performed as per plans. 1
Statement II: Controlling function of a manager is pervasive function.
 - a) **Statement I** is true and **Statement II** is false.
 - b) **Statement II** is true and **Statement I** is false
 - c) Both the statements are true.
 - d) Both the statements are false.

9. Assertion **(A)**: Business environment is largely certain. 1
Reason**(R)**: The future happenings in the business environment cannot be predicted easily.
 - a) Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**.
 - b) Both **(A)** and **(R)** are correct but **(R)** is not the correct explanation of **(A)**.
 - c) **(A)** is true but **(R)** is false.
 - d) **(A)** is false but **(R)** is true.

10. "Management always works by keeping an end result or aim of the organisation. All activities of managers are directed towards the end result." From the above statement identify the feature of management. 1
- Management is multi-dimensional.
 - Management is continuous.
 - Management is intangible.
 - Management is goal-oriented process.

11. According to Fayol - 1
- Organisation must use policy of centralization.
 - Organisation must use policy of decentralization.
 - Organisation must use combination of centralization and decentralisation.
 - None of these.

12. The economic survey 2019 suggests that the psychological studies can be used in the realm of tax compliance. It is in favour of using religious norms such as "dying debt" is a sin to improve tax compliance. 1
- Identify the related dimension of business environment.
- A) Economic B) Social C) Technological D) Legal E) Political
- Choose the correct answer from the options given below:
- A & B
 - B & D
 - E & C
 - A & E

13. 1



Identify the concept of organizing function of management illustrated by the picture

- Decentralization
- Delegation
- Departmentation
- Centralisation

14. When the stock market is bearish, a company may depend upon _____ in order to raise the required funds. 1
- Debentures
 - Equity shares
 - Preference shares
 - All of them

15. The process of defining and grouping the activities of enterprise and establishing authority relationship among them is: 1
- Directing
 - Staffing
 - Management
 - Organising

16. Assertion **(A)**: The lack of incentives within an organization leads to high rate of employee turnover. 1

Reason **(R)**: Motivation helps to reduce absenteeism in the organization

- Both **(A)** and **(R)** are correct and **(R)** is the correct explanation of **(A)**.
- Both **(A)** and **(R)** are correct but **(R)** is not the correct explanation of **(A)**.
- (A)** is true but **(R)** is false.
- (A)** is false but **(R)** is true.

17. Match the following and choose the correct option: 1

Column A	Column B
A) Orientation	i) Under it, competent applicants are selected out of a large number of them.
B) Performance appreciation	ii) Under it, the employee is given a brief presentation about the company.
C) Selection	iii) Under it, the capability of every employee is judged.
D) Recruitment	iv) The essential objective is to create a pool of prospective job candidates

- A-(i), B-(ii), C-(iii), D-(iv)
- A-(i), B-(iii), C-(ii), D-(iv)
- A-(iv), B-(iii), C-(ii), D-(i)
- A-(ii), B-(iii), C-(i) D-(iv)

18. Keya Limited is a large organization manufacturing a popular brand of designs and supplying it to various states of India. They manufacture 10,000 litres of desi ghee every day and pack in cartoon of two 250ml, 500ml and 1l size. The production manager ensures that one out of every 10 cartoons of each size is checked for quality control everyday. The step of the controlling process discussed in the above para is: 1
- Setting performance standards
 - Measurement of actual performance
 - Comparison of actual performance with standards
 - Analysing divisions
19. Which of the following is not an element of communication process? 1
- Decoding
 - Communication
 - Channel
 - Receiver
20. When the proportion of debt and equity is such that it results in an increase in the value of equity share the _____ is/are said to be optimal. 1
- Working capital
 - Fixed capital
 - Capital structure
 - Both (A) and (B)
21. Explain Fayol's principles of 'equity' and 'order' with examples. 3
- OR**
- Why principles of management are called 'contingent'. Explain with example.
22. A company is manufacturing garments. The manager wants to increase profit by purchasing new high-speed machines or increasing the sale price or using waste material in manufacturing stuffed toys. He decided that using waste material to increase the profit is the best solution for him. 3
- Identify the concept of management involved.
 - Mention the steps involved in the above process by quoting the line from the question.
23. Staffing ensures optimal utilization of human resources. Justify the statements by giving any two points. 3
- OR**
- State any three limitations of external sources of recruitment.
24. Explain the following steps in the process of controlling. 3
- Analysing deviations
 - Taking corrective actions
25. What is meant by business environment? Explain dynamic nature and uncertainty as feature of business environment. 4
26. Differentiate between 'delegation' and 'decentralization' on any four bases. 4
27. 'It is a process by which the aptitudes skills and abilities of employees to perform specific jobs are increased'. Identify the process and write any three of its benefits to the organization. 4
- OR**
- Explain any two sources of recruitment for various job positions which bring new blood in the organization and provide wider choice.
28. Alka is working in the accounts department of "Modern Locks Limited". Her mother is not well and to attend to her she wanted to take leave for one week for this, she went to the senior accountant, Manoj and discussed her problem. At the same time Manoj was simultaneously checking the balance sheet of the company, since his mind was preoccupied in some work he did not listen to Alka attentively and could not understand her problem. Alka was quite disappointed with the behaviour of Manoj. 4
- Identify the type of communication barrier discussed above.
 - Also explain three barriers of the same type.
29. X Ltd. issued 14% debentures of ₹4,00,000 and 10,000 equity shares of ₹60 each. This investment resulted in a net profit of ₹2,00,000 before interest and tax. The tax rate was 50%. 4
- Calculate the 'Return of Investment' and 'Earning Per Share' of X Ltd.
 - State with reason whether the above example is that of favourable or unfavourable financial leverage.
30. State the four needs in Maslow's Need Hierarchy after 'Basic Physiological Need'. 4

31. Explain the following characteristics of management 6
- i) Management is a group activity
 - ii) Management is dynamic function
 - iii) Management is multi-dimensional
32. Explain the following features of principles of management 6
- i) General guidelines
 - ii) Mainly behavioural
 - iii) Formed by practice and experimentation
33. A company is manufacturing washing machines. There is a well-defined system of jobs with a clear and definite authority, responsibility and accountability in the company. But people are not allowed to interact beyond their officially defined roles. As a result, the company is not able to adapt to the changing business environment. The workforce is also not motivated due to lack of social interaction. The company is facing problems of procedural delays and inadequate recognition to creative talents. 6
- i) Suggest how the organization can overcome the problems faced by it.
 - ii) Give any two benefits which will derive from your suggestion.
34. Explain 'strategy' and 'program' as types of plans. 6

OR

Explain any three points of importance of planning function of management.

BURNPUR RIVERSIDE SCHOOL, CHITTARANJAN
HALF-YEARLY EXAMINATION: (2025 – 2026)
INFORMATION TECHNOLOGY
CLASS: XII

Time: 3 Hours

Maximum Marks: 60

NAME: _____ SEC.: _____ ROLL NO.: _____

General Instructions:

1. Please read the instructions carefully.
2. This Question Paper consists of **24 questions** in two sections – Section A & Section B.
3. Section A has Objective type questions whereas Section B contains Subjective type questions.
4. **Out of the given (6 + 18 =) 24 questions, a candidate has to answer (6 + 11 =) 17 questions in the allotted (maximum) time of 3 hours.**
5. All questions of a particular section must be attempted in the correct order.
6. **SECTION A - OBJECTIVE TYPE QUESTIONS (30 MARKS):**
 - i. This section has 06 questions.
 - ii. There is no negative marking.
 - iii. Do as per the instructions given.
 - iv. Marks allotted are mentioned against each question/part.
7. **SECTION B – SUBJECTIVE TYPE QUESTIONS (30 MARKS):**
 - i. This section contains 18 questions.
 - ii. A candidate has to do 11 questions.
 - iii. Do as per the instructions given.
 - iv. Marks allotted are mentioned against each question/part.

SECTION A: OBJECTIVE TYPE QUESTIONS1. **Answer any 4 out of the given 6 questions on Employability Skills: (1 X 4 = 4 marks)**

- i. Which out of these is **not** a stage of active listening? 1
 a) Receiving b) Remembering c) Reacting d) Responding
- ii. _____ is a way of describing the various human characteristics that make us all different from one another. 1
 a) Personality b) Character c) Motivation d) Awareness
- iii. Name the personality disorder characterized by lack of interest in social relationships. 1
 a) Paranoid b) Schizotypal c) Borderline d) Schizoid
- iv. The arrangement of data in cells to make the worksheet appear presentable is known as 1
 a) Editing b) Formatting c) Alignment d) Sorting
- v. The values passed in the function in code is called its _____. 1
 a) Argument b) Function parameter c) Data d) Variables
- vi. A manufacturer of automobile spare parts is considered as 1
 a) Service b) Business entrepreneur c) Technical d) Industrial

2. **Answer any 5 out of the given 7 questions: (1 X 5 = 5 marks)**

- i. The number of attributes in a relation is called the _____ of a relation. 1
 a) Degree b) Tuple c) Cardinality d) Domain
- ii. Define Web Development. 1
- iii. A table joining to itself in SQL is known as 1
 a) Natural join b) Equijoin c) Self join d) Cross join
- iv. What is work integrated learning? 1
- v. What is the full form of MOOC? 1
- vi. ROLLBACK is a _____ command. 1
 a) DDL b) DML c) DCL d) TCL
- vii. Consider a table **ORDER**.

ORDERNO	DATE	ID	QTY
1001	2022-01-12	P001	180
1002	2022-12-31	P002	175
1003	2023-01-20	P001	125
1004	2023-12-25	P003	190
1005	2023-11-20	P002	155
1006	2022-11-15	P001	130

What is the schema of the table?

3. **Answer any 6 out of the given 7 questions:** (1 X 6 = 6 marks)
- Write the code for establishing JDBC driver connection with MySQL. 1
 - Which key constraint is to be used to maintain referential integrity between two tables? 1
 - Name the e-governance portal of India. 1
 - Consider the table **VEHICLE** given.
Table: VEHICLE
- | MID | NAME | BRAND | CAPACITY | COLOR |
|------|---------|----------|----------|--------|
| H101 | I20 | Hyundai | 5 | WHITE |
| M012 | XUV500 | Mahindra | 5 | BLUE |
| T107 | Innova | Toyota | 7 | SILVER |
| H131 | Verna | Hyundai | 5 | BLUE |
| M010 | Celerio | Maruti | 5 | RED |
| R100 | Duster | Renault | 7 | WHITE |
- Identify the degree and cardinality of the table.
- What is the full form of JAR? 1
 - Complete the command to exit from a page in NetBeans IDE system. 1
 - Udemy, the online teaching and learning market place has over _____ courses. 1
 - 210000
 - 212000
 - 213000
 - 215000
4. **Answer any 5 out of the given 6 questions:** (1 X 5 = 5 marks)
- State True or False** 1

"DBMS could not find any usage in hospital domain."
 - Adrisa wanted to book her flight to attend an international conference. She needs to book her flight online.
Help her to follow the correct sequence of steps. 1
 - Make the payment
 - Open the online reservation website
 - Choose the dates of travel
 - Browse and search for the required info
 - B, D, C, A
 - A, B, C, D
 - C, A, D, B
 - A, B, D, C,
 - Which keyword is used to display unique values from a table? 1
 - Unique
 - Where
 - Distinct
 - Order By
 - State True or False 1

JDBC is a Java API that connects and executes the query with the database.
 - What is the full form of DARTPG? 1
 - Which arithmetic operator is not supported by MySQL? 1
 - +
 - %
 - *
 - //
5. **Answer any 5 out of the given 6 questions:** (1 X 5 = 5 marks)
- Aparna wants to remove the table PERSONAL permanently from the database along with all the constraints that refer to this table. Write the command to help her do the same. 1
 - This function returns the number of values in the specified column ignoring the null values. Name the function. 1
 - State True or False:** 1

Finding all the bugs and fixing them is a part of maintenance phase of the project.
 - Which operator in MySQL is required to compare equality with NULL? 1
 - In
 - IS
 - Between
 - Not In
 - In a table 'employee', the name of one of the employee (emp_name) is to be changed to Tarun Kumar from Tarun Singh. His emp_id is 409. Write the SQL query for the same. 1
 - How many referential integrity rules are there in foreign key constraint? 1
 - 1
 - 2
 - 3
 - 4
6. **Answer any 5 out of the given 6 questions:** (1 X 5 = 5 marks)
- Which out of these is **not** a web browser? 1
 - Chrome
 - NetScape
 - Opera
 - Google
 - The full form of NeGP is National _____ Plan. 1
 - A tuple from the database is also called _____ of the table. 1
 - Which stage of web development life cycle is the most time consuming? 1

- v. What is self-referencing table? 1
- vi. Write an SQL query to remove a primary key constraint from the table 'fee'. 1

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer any 3 out of given 5 questions on Employability Skills (2 X 3 = 6 marks)

Answer each questions in 20-30 words

7. Write the importance of active listening at the workplace.(Any two) 2
8. Write any two steps to overcome personality disorders 2
9. What do you mean by filtering of data? Can filtering be done based on more than one column? 2
10. Write the steps to protect a spreadsheet with password. 2
11. Define First generation entrepreneurs. 2

Answer any 3 out of the given 5 questions (2X3=6 marks)

12. Write the syntax to open database connection for connecting MySQL with NetBeans? 2
13. What are wildcard characters in MySQL? Name them. 2
14. Rajni is assigned the task to maintain the SQL database for Powerstock Ltd. She has created a table named **STOCKDATA** with the following structure:
- Stock_id – Integer, Primary Key
 - Symbol – Varchar(10)
 - Value – Integer(5)
 - Type – Char(10)

The table presently contains the following data:

Stock_id	Symbol	Value	Type
2624	REL	6653	Sell
7660	INFY	3064	Buy
4361	NFY	3117	Buy
7292	TC	6865	Buy

2

The company wants the attribute Value for the table to store values as real numbers with a precision up to 4 decimal places.

- a) What SQL statement Rajni should write to make the desired change?
- b) Company also wants to see the updated structure of the table. What statement she should write?

15. Write any 2 precautions to be taken while performing online transaction. 2
16. Write any 2 key characteristics of a project. 2

Answer any 2 out of the given 3 questions (3X2= 6 marks)

17. a) Write an SQL command to view the current database we are working on. 1
- b) Classify the SQL commands into DDL and DML.
CREATE, SELECT, DROP, DELETE 2
18. What are the benefits of online shopping?(Any 6) 3
19. Explain the purpose of e-governance. 3

Answer any 3 out of the given 5 questions (4X3= 12 marks)

20. a) Name the 7 stages of web development life cycle. 1+3
- b) During the 1st stage of web development, some common questions are to be asked to the client. Write at least 6 such questions.
21. What is RDBMS? Why do we need RDBMS? (3 points) 1+3
22. Name any two online learning sites. What are the advantages of online learning? (3 points) 1+3
23. a) Define referential integrity constraint.
- b) Differentiate between DROP and DELETE commands in SQL with appropriate examples. 1+3

24. Consider the following tables TRAIN and PASSENGER.

4

Table: TRAIN

TID	TName	Boarding	Destination	Cost
305	VandeBharat	New Delhi	Katra	2500
206	Shatabdi	Mumbai	Delhi	3500
307	Superfast	Lucknow	Chennai	4500
208	HolidayExpress	Goa	Delhi	2000

Table: PASSENGER

PID	TID	Name	DOT
P108	307	Gagandeep Singh	14-10-2022
P209	206	Rahat Ali	01-01-2023
P110	305	Cristopher	10-12-2022
P677	208	Diksha Luther	11-09-2019
P555	307	Nira Kadam	06-11-2020
P211	208	Ritam Ahuja	17-12-2021

Write SQL queries for the following:

- To display the count of passengers travelling by each train.
- To display the details of the passengers travelling by Vande Bharat.
- To display the combined details of both the tables.
- To display the details of trains whose fare is more than 2500.

BURNPUR RIVERSIDE SCHOOL, CHITTARANJAN
HALF-YEARLY EXAMINATION: (2025-26)
PHYSICS
CLASS: XII

Time: 3 Hours

Maximum Marks:

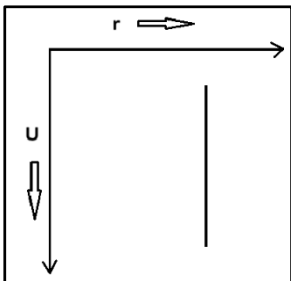
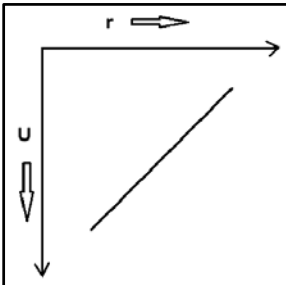
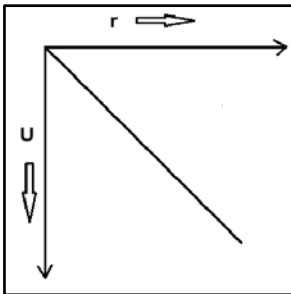
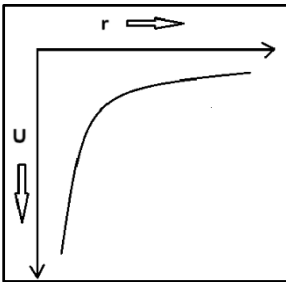
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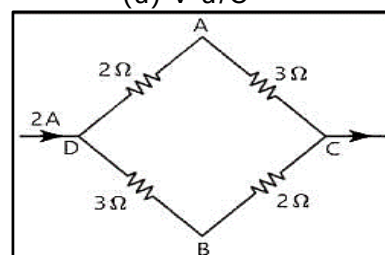
NAME: _____ ROLL NO.: _____ SEC.: _____

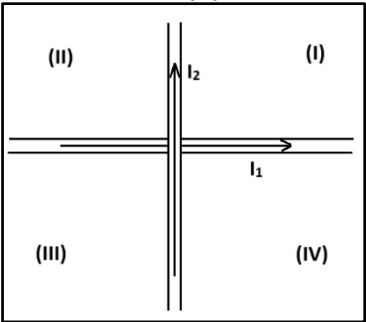
General Instructions:

- (i) There are 33 questions in all. All questions are compulsory.
- (ii) This question paper has five sections: Section A, Section B Section C, Section D and Section E.
- (iii) All the sections are compulsory.
- (iv) **Section A** contains **sixteen questions, twelve MCQ and four Assertion Reasoning based of 1 mark each**, **Section B** contains **five questions of two marks each**, **Section C** contains **seven questions of three marks each**, **Section D** contains **two case study-based questions of four marks each** and **Section E** contains **three long answer questions of five marks each**.
- (v) There is no overall choice. However, an internal choice has been provided in two questions in Section B, one question in Section C and all three questions in Section E. You have to attempt only one of the choices in such questions.
- (vi) Use of calculator is not allowed.

SECTION - A

1. Two metallic spheres of radii a and b , respectively are charged and joined by a wire. The ratio of the electric field intensities at the surfaces of these spheres is – 1
 - (a) a/b (b) b/a (c) a^2/b^2 (d) b^2/a^2
2. An electric dipole placed in an electric field of intensity $2 \times 10^5 \text{ NC}^{-1}$ at an angle of 30° experiences a torque equal to 4 Nm . The charge on the dipole of dipole length 2 cm is – 1
 - (a) $7 \mu\text{C}$ (b) 8 mC (c) 2 mC (d) 5 mC
3. The potential energy (U) of a system of two unlike charges varies with distance (r) between them as – 1
 - (a)  (b) 
 - (c)  (d) 
4. The force between the plates of a parallel plate capacitor of capacitance C and distance of separation of the plates d with a potential difference V between the plates is – 1
 - (a) $CV^2/2d$ (b) C^2/V^2 (c) C^2V^2/d^2 (d) V^2d/C
5. What will be the potential difference between the points A and B as shown in the figure beside? 1
 - (a) 2 V
 - (b) 3 V
 - (c) 1 V
 - (d) 5 V



6. If n , e , τ and m denote number density, charge, relaxation time and mass of electron respectively, then the expression of conductivity will be - 1
 (a) $m/ne^2\tau$ (b) $ne^2/\tau m$ (c) $e^2\tau/mn$ (d) $ne^2\tau/m$
7. An electron with angular momentum L moving around the nucleus has a magnetic moment given by - 1
 (a) $eL/2m$ (b) $eL/3m$ (c) $eL/4m$ (d) eL/m
8. Two wires carrying currents I_1 and I_2 lie, one slightly above the other in a horizontal plane as shown in the figure beside. 1
 The region of vertically upward strongest magnetic field is -
 (a) Region (I) (b) Region (II)
 (c) Region (III) (d) Region (IV)
- 
9. The magnetic susceptibility(χ) for a diamagnetic material is - 1
 (a) small and negative (b) small and positive
 (c) large and negative (d) large and positive
10. A constant current is flowing through a solenoid. An iron rod is inserted in the solenoid along its axis. Which of the following quantities will not increase? 1
 (a) magnetic field at the centre (b) magnetic flux linked with the solenoid
 (c) rate of heating in the wire (d) self-inductance of the solenoid
11. What is the resistance offered by a capacitor for the steady current? 1
 (a) one unit (b) zero (c) infinity (d) depends on voltage value
12. In a series LCR circuit, the phase difference between the applied voltage and current depends on - 1
 (a) only the resistance R (b) Both the inductance L and capacitance C
 (c) the values of R , L and C (d) Both the resistance R and capacitance C
- For Questions 13 to 16, two statements are given –one labelled Assertion (A) and other labelled Reason (R). Select the correct answer to these questions from the options as given below.**
- a) If both Assertion and Reason are true and Reason is correct explanation of Assertion.
 b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 c) If Assertion is true but Reason is false.
 d) If both Assertion and Reason are false.
13. **Assertion(A):** Net electric field inside a conductor is zero. 1
Reason(R): Total positive charge equals to total negative charge in a charged conductor.
14. **Assertion(A):** Energy stored in a capacitor is not equal to the work done in charging it. 1
Reason(R): A charged capacitor is disconnected from a battery. Now if its plates are separated further, the potential energy will fall.
15. **Assertion(A):** The intensity of magnetisation is a measure of the degree of magnetisation of a material. 1
Reason(R): The intensity of magnetisation is directly proportional to the magnetic moment per unit volume of the material.
16. **Assertion(A):** Induced EMF is proportional to rate of change of magnetic flux while 1

induced current depends on resistance of the wire.

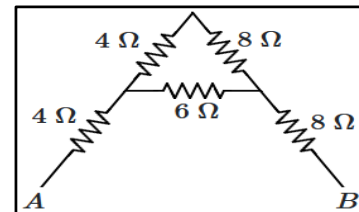
Reason(R): The induced EMF and current will be same in two identical loops of copper and aluminium when rotated with same speed in same magnetic field.

SECTION – B

17. Two parallel infinite sheets are placed side by side with charge densities $+3\sigma$ and -2σ respectively. Find the magnitude electric field between them in terms of σ . 2
18. Write the expression of potential energy of a system of two charges in an external field and specify its different terms. 2
19. What is meant by drift speed of free electrons? Write the expression of current in terms of drift speed. 2

OR

Calculate the current drawn from the battery in the given network if voltage difference between A and B is 32 V.



20. A constant current of magnitude 2 A is passing through a horizontal wire from east to west direction. Find the magnetic field at a distance of 10 cm just below the wire. 2

OR

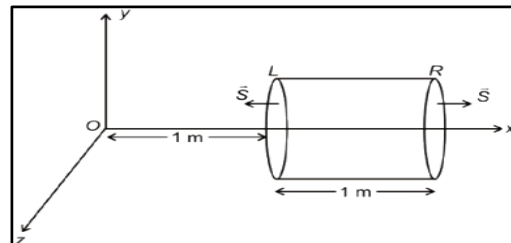
A shunt of resistance $6\ \Omega$ is connected across a galvanometer of resistance $294\ \Omega$. Find the fraction of the total current passing through the galvanometer.

21. Permanent magnets are made of special alloys while the cores of temporary magnets are made of soft iron. Why? 2

SECTION – C

22. A hollow cylindrical box of length 1 m and area of cross section 25 cm^2 is placed in XYZ-space as shown in figure beside. If electric field in the region is given by,

$\mathbf{E} = 50x\ \mathbf{i}\ \text{NC}^{-1}$, where x is in meter.
Find –



- (a) net flux through the cylinder and
(b) charge enclosed by the cylinder.

23. An electric dipole having a dipole moment of $4 \times 10^{-9}\text{ Cm}$ is placed in a uniform electric field such that the dipole is in stable equilibrium. If the magnitude of electric field is $3 \times 10^3\text{ NC}^{-1}$ then find the work done in rotating the dipole to the position of unstable equilibrium. 3
24. A cell of constant EMF and some internal resistance is first connected to a resistance of $1.6\ \Omega$ and then to a resistance of $0.9\ \Omega$. If the power delivered in both cases are same, then find the internal resistance of the cell. 3
25. (i) State Ampere's circuital law. 3
(ii) Use this law to find the magnetic field due to a current carrying conductor at a distance r from its axis.
26. Differentiate between Diamagnetic, Paramagnetic and Ferromagnetic materials on the basis of their magnetic permeability and magnetic susceptibility. 3
27. Show that current leads the voltage by a phase angle of $\pi/2$ when an AC source is connected across an ideal capacitor. 3
28. (i) Obtain the expression for the magnetic energy stored in a solenoid in terms of magnetic field B , area A and length l of the solenoid. 3
(ii) Compare this energy with the electrostatic energy stored in a capacitor.

OR

- (i) With the help of the expression of average power dissipated in series LCR circuit, explain the following terms:
 (a) Resistive circuit,
 (b) Purely inductive circuit and
 (c) Wattless current.

SECTION – D

29. Electric field lines arrangement and its direction depends on distribution of charge in space. When two or more charged particles come closer, they distribute their electric field lines, and experience forces on themselves.

Electric field is an elegant way of characterising the electrical environment of a system of charges. Electric field at a point in the space around a system of charges tells you the force a unit positive test charge would experience if placed at that point.

The field picture is this: the accelerated motion of charge q_1 produces electromagnetic waves, which then propagate with the speed c , reach q_2 and cause a force on q_2 .

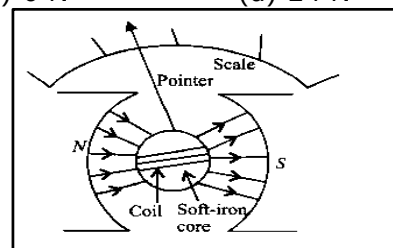
- (i) If the medium between two charges is air, then the value of proportionality constant (k) will be –
 (a) $9 \times 10^{-9} \text{ Nm}^2\text{C}^{-2}$ (b) $9 \times 10^9 \text{ Nm}^2\text{C}^{-2}$ (c) $9 \times 10^{-5} \text{ Nm}^2\text{C}^{-2}$ (d) $9 \times 10^5 \text{ Nm}^2\text{C}^{-2}$
- (ii) Ratio of force of repulsion between two electrons and two protons separated by same distance in air is –
 (a) 1 : 1 (b) $m_e : m_p$ (c) $m_p : m_e$ (d) 1 : 2
- (iii) Two charges A ($+3 \mu\text{C}$) and B ($-5 \mu\text{C}$) are held in air at unit distance. The ratio of magnitude of electric field due to A at B and due to B at A is –
 (a) 5 : 3 (b) 3 : 5 (c) 25 : 9 (d) 9 : 25
- (iv) Two charges $+8 \mu\text{C}$ and $-6 \mu\text{C}$ held at certain distance apart in air attract each other with a force of 12 N. A charge of $+4 \mu\text{C}$ is added to each. The force between the new charges held at the same distance apart in air will be –
 (a) 12 N (b) 2 N (c) 6 N (d) 24 N

30. Moving coil galvanometer operates on Permanent Magnet Moving Coil (PMMC) mechanism and was designed by the scientist D'Arsonval.

Moving coil galvanometers are of two types

- (i) Suspended coil
 (ii) Pivoted coil type or tangent galvanometer.

Its working is based on the fact that when a current carrying coil is placed in a magnetic field, it experiences a torque. This torque tends to rotate the coil about its axis of suspension in such a way that the magnetic flux passing through the coil is maximum.



- (i) State two factors on which current sensitivity of a moving coil galvanometer depends and how? 2
- (ii) Increasing current sensitivity does not always increase voltage sensitivity' – Explain. 1
- (iii) What can you conclude when a galvanometer shows half deflection? 1

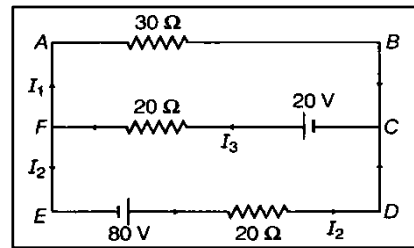
SECTION – E

31. (i) What do you mean by the statement that 'the dielectric constant of water is 80'? Instead of this high value, why is it not used as a dielectric in a capacitor? 5
- (ii) The ratio of the capacitances of three capacitors is 2:3:5. The equivalent capacitance of their parallel combination is greater than that of their series combination by $28 \mu\text{F}$. Determine the capacitances of the three capacitors.

OR

- (i) Find the expression of electric potential on the axis of an electric dipole.
- (ii) What is the magnitude of the electric field at a point $(3\mathbf{i} - 2\mathbf{j} + 4\mathbf{k}) \text{ m}$ if the electric potential is given by $V = 2xyz^2$, where V is in volt and x , y and z are in meters.
32. (i) Define mobility of an electron. Derive a relation of it with the relaxation time of electron. 5

- (ii) Using Kirchhoff's rules determine the value of currents I_1 , I_2 and I_3 .



OR

- (i) How the resistivity of a metallic conductor depends on the temperature of it? Plot the variation of resistivity with temperature for a typical semiconductor.
 (ii) The resistance of the wire in the platinum resistance thermometer at ice point is $5\ \Omega$ and at steam point is $5.25\ \Omega$. When the thermometer is inserted in an unknown hot bath its resistance is found to be $5.5\ \Omega$. What is the temperature of the hot bath?

33. (i) State Lenz's Law.
 (ii) Define motional EMF. State two factors on which it depends.
 (iii) A silver rod of length 1 m fixed at one end is rotating with angular velocity of 400 rad s^{-1} about the fixed end in a uniform magnetic field of intensity 0.3 T . Find the induced emf between the centre and far end of the rod.

OR

- (i) State any two energy losses that occur in a transformer.
 (ii) A series LCR circuit with $L=4.0\text{ H}$, $C=100\mu\text{F}$ and $R=60\ \Omega$ is connected to a variable frequency 240 V source. Calculate -
 (a) angular frequency of the source which drives the circuit in resonance,
 (b) rms current at the resonating frequency and
 (c) rms potential drop across the inductor at resonance.

5

BURNPUR RIVERSIDE SCHOOL, CHITTARANJAN
HALF YEARLY: (2025-2026)
BIOLOGY
CLASS: XII

Time: 3 Hours

Maximum Marks: 70

NAME: _____ SEC.: _____ ROLL NO.: _____

General Instructions:

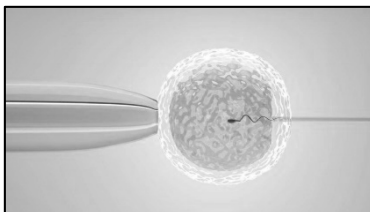
Read the following instructions very carefully and strictly follow them:

- i. This question paper consists of **33** questions in 5 sections.
- ii. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
- iii. **Section A** consists of 16 objective type questions carrying **1** mark each.
- iv. **Section B** consists of 5 Very Short questions carrying **2** marks each. Answers to these questions should be in the range of 30 to 50 words.
- v. **Section C** consists of 7 Short Answer type questions carrying **3** marks each. Answers to these questions should be in the range of 50 to 80 words.
- vi. **Section D** consists of 2 source-based/case-based units of assessment of **4** marks each with sub-parts.
- vii. **Section E** consists of 3 Long Answer type questions carrying **5** marks each. Answer to these questions should be in the range of 80 to 120 words.

Section A

Select and write the most appropriate option out of the four options given for each of the questions 1 - 16. There is no negative mark for incorrect response.

1. Cells of the tapetum of a microsporangium are usually multinucleate. Which of the following can be the reason for the tapetal cells to become multinucleate? [1]
 - (a) They fuse with polar cells of the megasopargium.
 - (b) They do not undergo karyokinesis.
 - (c) They do not undergo cytokinesis.
 - (d) They do not undergo mitosis.
2. The nature of meiotic division during oogenesis in a human female is [1]
 - (a) equal cell division
 - (b) suspended cell division
 - (c) continuous cell division
 - (d) rapid cell division.
3. Observe the representation of assisted reproductive technology given below: [1]



Identify the most appropriate technique depicted in the above diagram.

4. An IUD recommended to promote the cervix's hostility to the sperm is: [1]
 - (a) Copper-T
 - (b) Multiload-37
 - (c) LNG-20
 - (d) Cu7
5. Read the following statements with respect to law of dominance. [1]
 - i. Characters are controlled by discrete units called factors.
 - ii. Homozygous produces similar kind of gametes.
 - iii. Factors always occur in pairs.
 - iv. In a dissimilar pair of factors one member of pair dominate other.
 - v. During gamete formation traits segregates from each other and passes to different gametes.
 Choose the correct answer from the options given below.
 - (a) i , iii, and iv
 - (b) ii, iv & v
 - (c) iii & v
 - (d) i, ii, iii, iv & v.
6. Given below is a sequence of bases in mRNA of a bacterial cell. Identify the amino acid that would be incorporated at codon position 3 and codon position 5 during the process of its translation. [1]

3'—AUCAGGUUUUGUGAUGGUACGA—5'

	I	II
(a)	Phe	Met
(b)	Cys	Gly
(c)	Ala	Met
(d)	Ser	Val

7. Who proposed the mutation theory in favour of organic evolution? [1]

(a) Weisman (b) Louis Pasteur (c) Darwin (d) Hugo de Vries

8. Match the following columns [1]

Column 1	Column 2
A. Chancroid	1. <i>Treponema pallidum</i>
B. Syphilis	2. Human papilloma virus
C. Gonorrhoea	3. <i>Neisseria gonorrhoea</i>
D. Genital wart	4. <i>Haemophilus ducrei</i>

Choose correct answer from the options

(a) A-3, B-2, C-4, D-1 (b) A-2, B-1, C-3, D-4

(c) A-4, B-1, C-3, D-2 (d) A-2, B-4, C-3, D-1

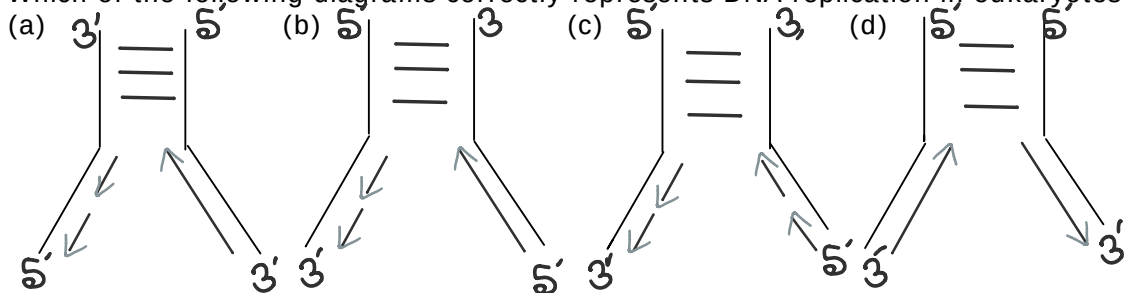
9. A patient was advised to have a kidney transplant. To suppress the immune reaction, the doctor would administer him: [1]

(a) statins produced from *Monascus purpureus*
 (b) statins produced from *Streptococcus thermophilus*
 (c) cyclosporin A produced from *Trichoderma polysporum*
 (d) cyclosporin A produced from *Clostridium butylicum*

10. A DNA molecule is 160 bp long. If it has 20% adenine, how many cytosine bases are present in this DNA molecule? [1]

(a) 48 (b) 64 (c) 96 (d) 192

11. Which of the following diagrams correctly represents DNA replication in eukaryotes? [1]



12. Which of these cells of the human male reproductive system is haploid? [1]

(a) Spermatid
 (b) Sertoli cell
 (c) Leydig cells
 (d) Spermatogonium

Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

a) Both A and R are true, and R is the correct explanation of A.
 b) Both A and R are true, and R is not the correct explanation of A.
 c) A is true but R is false.
 d) A is false but R is true.

13. **Assertion(A):** DNA code is copied in the synthesis of mRNA. [1]
Reason(R): tRNA moves out of nucleus and after attaching or ribosome form the template.

14. **Assertion(A):** A person who has received a cut and is bleeding needs to be given anti-tetanus treatment. [1]
Reason(R): Anti-tetanus injection provides immunity by producing antibodies for tetanus..

15. **Assertion(A):** The phenomenon where tumor cells detach and migrate to other parts of the body where they give rise to secondary tumours is called metastasis. [1]
Reason(R): Abnormal antigens on the surface of cell and unusual member of chromosomes cause metastasis.

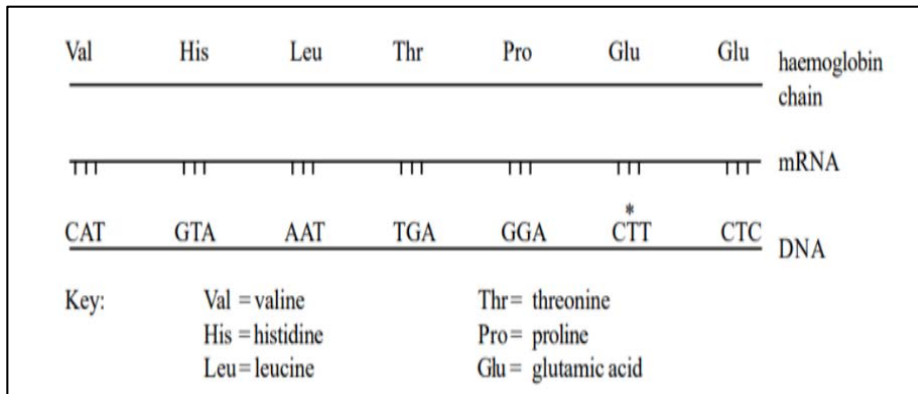
16. **Assertion(A):** Nuclear Endosperm is formed by subsequent nuclear division without wall formation. [1]

Reason(R): Coconut is an example of such Endosperm, where the Endosperm remains nuclear throughout the development of the fruit.

Section B

Question No. 17 to 21 are very short answer questions

17. 'For a common man both mango and strawberry are fruits, but not for biology students.' Justify giving two reasons. [2]
Site an example of edible perisperm.
18. How is the rate of initiation of RNA polymerase at a given promoter in a transcriptional unit of prokaryotes regulated? [2]
19. The diagram below shows the sequence of amino acids in part of a haemoglobin molecule. [2]



- a) If the base T* was substituted with A, how would it affect the haemoglobin chain?
 b) Name the condition and the effects associated with the above substitution.
20. (a) A blood test reported negative for hCG. What does negative hCG imply? Name the tissue which produces hCG? [2]
 (b) If a blood test reported positive for hCG in a person, then which other hormones would also be secreted by the tissue secreting hCG?
21. **Attempt either option A or B** [2]
- A. (a) Rearrange the following in the correct order of their appearance on earth between 2 million years to 40,000 years back.
Neanderthals, Australopithecines, Homo erectus & Homo habilis.
 (b) Which one of the above
 i) had largest brain size?
 ii) ate fruits?
- OR**
- B. (a) State Hardy-Weinberg principle as indicated in the following equation:

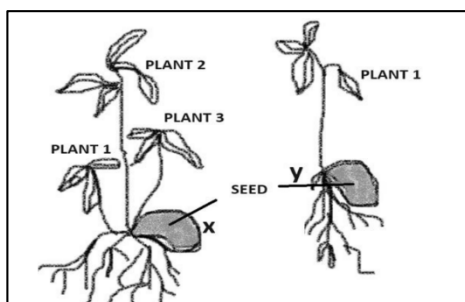
$$P^2 + 2pq + q^2 = 1$$

 (b) What would you interpret if the value is 0.8 in the above equation?

Section C

Question No. 22 to 28 are short answer questions

22. The image below shows two germinated seeds X and Y which belong to the same species. Seed X is produced by apomixis whereas seed Y is a product of sexual reproduction. [3]



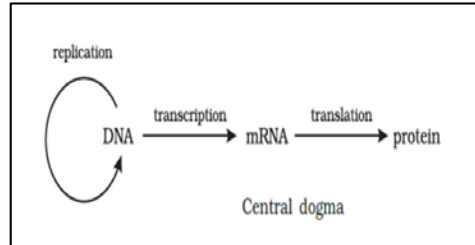
- a) Write the number of embryo(s), embryo sac(s) and ovules in the ovary of seed X.
 b) How multiples embryos are formed in citrus fruits?
 c) What advantage will plants developed from seed Y have over seed X?
23. A. **Attempt either option A or B** [3]
 You are asked to find the genotypes of a tall pea plant growing in your school garden. Name the cross and explain how would you confirm the genotypes?

OR

- B. Expression of different genes for different traits may show dominance, incomplete dominance or co-dominance. Write about expression of such genes with the help of one example each.

24. Suggest a suitable contraceptive device for the following cases with justification. (a) Mohini does not want to take the risk of conception and sexually transmitted infections (STIs). [3]
(b) Lalita has two children and does not want any more children.
(c) Geeta wants a contraceptive that she can take till she wants to avoid conception and can resume back to her fertile life without the intervention of the doctor. Also, it should have a lower failure rate

25. The schematic representation given below shows the concept of Central Dogma. [3]

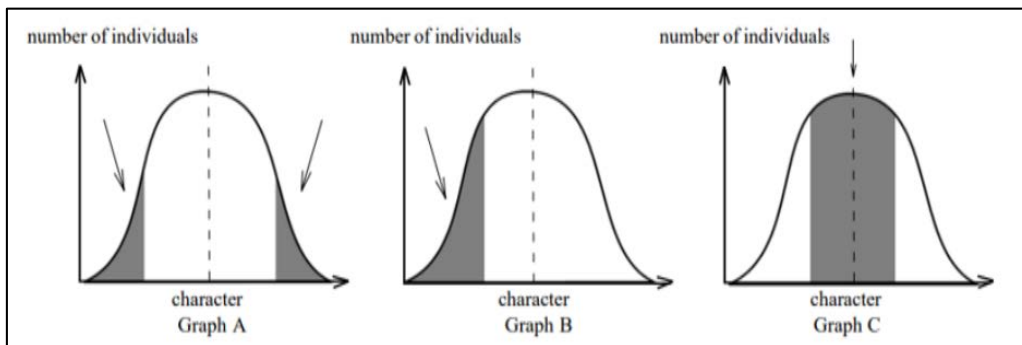


(a) During the process of replication and transcription the pairing of nitrogenous bases is not similar. Explain.

(b) How is the above process modified in a retrovirus? Name the process.

(c) Justify why during the process of transcription only a segment of DNA is copied into RNA.

26. The graphs below show three types of natural selection. The shaded areas marked with arrows show the individuals in the population which are not selected. The dotted vertical lines show the statistical means. [3]



(a) What names are given to the types of selection shown in graphs A, B and C.

(b) After the selection has operated for several generations in the above populations indicated as Graph A, B and C, graphically illustrate the probable results.

27. The aeration tank of a sewage treatment plant is not functioning properly. Explain in detail the impact of this on the treatment of sewage and BOD of the effluent. [3]

28. Explain the processing of hnRNA into a fully functional mRNA in eukaryotes. Where does this processing occur in cell. [3]

Section D

Question No. 29 to 30 are case-based / data -based questions with 3 to 4 short sub-parts. Internal choice is provided in one of these sub-parts.

29. Read the following passage and answer the questions follow: [4]

A population of a certain plant species inhabits an area with variable water availability. The plant species carry a gene that influences drought resistance, with two alleles, D and d, where D confers extreme drought resistance and d confers poor drought resistance. Plants with the heterozygous genotype (Dd) were able to survive in different water conditions. In a population of 1000 plants, it was found that 250 plants had the DD genotypes.

(a) Calculate the frequency of the DD, Dd and dd genotypes in the population. Show calculation. (2)

(b) Which kind of graph would it represent? (1)

Attempt either subpart C or D.

(c) How genetic drift affect Hardy-Weinberg equilibrium? (1)

OR

(d) Mention two factors that affect Hardy-Weinberg equilibrium, other than genetic drift.

30. Read the following passage and answer the questions follow:

[4]

Mosquitoes are drastically affecting human health in almost all the developing tropical countries. Different species of mosquitoes cause very fatal diseases, so much so that many humans lose their lives, and if they survive, are unable to put in productive hours to sustain their lives. With the result, the health index of the country goes down.

(a) Name the form in which *Plasmodium* gains entry into i) human body ii) the female *Anopheles* body. (1)

(b) Why do the symptoms of malaria not appear in a person immediately after bitten by an infected female *Anopheles*? Give one reason. Explain when and how the symptoms of the disease would appear. (2)

Attempt either subpart C or D.

(c) Name the species of mosquito other than female *Anopheles* and the disease, for which it carries the pathogen. (1)

OR

(d) Name clinical tests which confirms that a person affected by malaria?

Section E

Question No. 31 to 33 are long answer questions.

31. Attempt either option A or B

[5]

A. Given below is a stretch of DNA showing the coding strand of a structural gene of a transcription unit?

5'--ATG ACC GTA TTT TCT GTA GTG CCC GTA CTT CAG GCA TAA—3'

(a) Write the corresponding template strand and the mRNA strand that will be transcribed, along with its polarity.

(b) If GUA of the transcribed mRNA is an intron, depict the sequence involved in the formation of mRNA /the mature processed hnRNA strand.

i. In a bacterium ii. In humans

(c) Upon translation, how many amino acids will the resulting polypeptide have? Justify.

OR

B. In shorthorn cattle, the coat colours red or white are controlled by a single pair of alleles. A calf which receives the allele for red coat from its mother and the allele for white coat from its father is called a 'roan'. It has an equal number of red and white hairs in its coat.

(a) Is this an example of codominance or of incomplete dominance?

(b) Give a reason for your answer.

(c) With the help of genetic cross explain what will be the consequent phenotype of the calf when

i. red is dominant over white

ii. red is incompletely dominant

32. Attempt either option A or B

[5]

A. Explain the role of Primary and Secondary Lymphoid organs with the help of suitable examples.

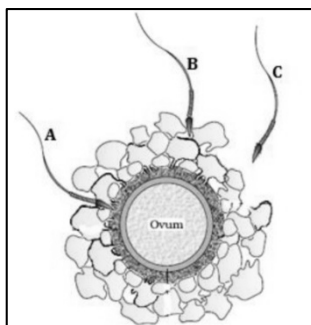
OR

B. With the help of a flow chart illustrate how an infected animal cell can survive while viruses are being replicated or released.

33. Attempt either option A or B

[5]

A. Given below is the diagram of a human ovum surrounded by a few sperms. Observe the diagram and answer the following questions:



(a) Compare the fate of sperms shown in the diagram.

- (b) What is the role of zona pellucida in this process?
- (c) Analyze the changes occurring in the ovum during the process.
- (d) How is the entry of sperm into the ovum facilitated?
- (e) Specify the region of female reproductive system where the event represented in the diagram takes place.

OR

- B.
 - (a) Why doctors recommend breast feeding during initial period of infant growth?
 - (b) Corpus luteum in pregnancy has a long life. However, if fertilisation does not take place, it remains active only for 10-12 days. Explain.
 - (c) Where does the first cleavage division of zygote take place?

BURNPUR RIVERSIDE SCHOOL, CHITTARANJAN
HALF-YEARLY EXAMINATION: (2025-2026)
CHEMISTRY
CLASS: XII

Time: 3 Hours

Maximum Marks: 70

NAME: _____ SEC.: _____ ROLL NO.: _____

General Instructions:

Read the following instructions very carefully and strictly follow them:

1. There are **33** questions in this question paper with internal choice.
2. **SECTION A** consists of 16 multiple-choice questions carrying **1** mark each.
3. **SECTION B** consists of 5 very short answer questions carrying **2** marks each.
4. **SECTION C** consists of 7 short answer questions carrying **3** marks each.
5. **SECTION D** consists of 2 case-based question carrying **4** marks each.
6. **SECTION E** consists of 3 long answer questions carrying **5** marks each.
7. **All questions are compulsory.**
8. **Use of log tables and calculators is not allowed.**

Section A

The following questions are multiple -choice questions with one correct answer. Each question carries 1 mark. There is no internal choice in this section.

1. An unknown gas 'X' is dissolved in water at 2.5 bar pressure and has mole fraction 0.04 in the solution. The mole fraction of 'X' gas when the pressure of gas is doubled at the same temperature is
 (a) 0.08 (b) 0.04 (c) 0.02 (d) 0.92 1
2. On mixing 20ml of acetone with 30ml of chloroform, the total volume of solution is
 (a) >50 ml (b) =50ml (c) <50ml (d) 10ml 1
3. Standard electrode potential for $\text{Sn}^{4+}/\text{Sn}^{2+}$ couple is +0.15 V and that for the Cr^{3+}/Cr couple is -0.74 V. The two couples in their standard states are connected to make a cell. The cell potential will be
 (a) +1.19 V (b) +0.89 V (c) +0.59 V (d) +0.18 V 1
4. The molar ionic conductivities of Ca^{2+} and Cl^- are 119.0 and 76.3 $\text{S cm}^2 \text{ mol}^{-1}$ respectively. The value of limiting molar conductivity of CaCl_2 will be
 (a) 195.3 $\text{Scm}^2 \text{ mol}^{-1}$ (b) 43.3 $\text{Scm}^2 \text{ mol}^{-1}$ (c) 314.3 $\text{Scm}^2 \text{ mol}^{-1}$ (d) 271.6 $\text{Scm}^2 \text{ mol}^{-1}$ 1
5. How many coulombs are required for the oxidation of 1 mole of H_2O to O_2 ?
 (a) $1.93 \times 10^5 \text{ C}$ (b) $9.65 \times 10^4 \text{ C}$ (c) $3.86 \times 10^5 \text{ C}$ (d) $4.825 \times 10^5 \text{ C}$ 1
6. Which of the following is a secondary cell?
 (a) Dry cell (b) Lead storage cell (c) Mercury cell (d) Daniel cel 1
7. When the initial concentration of a reactant is doubled in the reaction, the half life period remains same. The order of reaction is
 (a) First (b) Second (c) Zero (d) Half 1
8. Which of the following represents the fraction of molecules with energies equal to or greater than E_a ?
 (a) $-\frac{E_a}{RT}$ (b) $e^{-E_a/RT}$ (c) $e^{+E_a/RT}$ (d) $+\frac{E_a}{RT}$ 1
9. Which of the following is **not** a factor that affects the rate of a chemical reaction?
 (a) Temperature (b) Concentration of reactants
 (c) Physical state of reactants (d) Nuclear charge of reactants 1
10. Which of the following haloalkanes is most reactive towards S_N^2 reaction?
 (a) $\text{CH}_3\text{CH}_2\text{I}$ (b) $\text{CH}_3\text{CH}_2\text{Br}$ (c) $\text{CH}_3\text{CH}_2\text{Cl}$ (d) $\text{CH}_3\text{CH}_2\text{F}$ 1
11. $\text{C}_6\text{H}_5\text{-O-CH}_3$ when treated with HI gives:
 (a) $\text{C}_6\text{H}_5\text{-I} + \text{CH}_3\text{-OH}$ (b) $\text{C}_6\text{H}_5\text{-OH} + \text{CH}_3\text{-I}$ (c) $\text{C}_6\text{H}_5\text{-OH} + \text{CH}_3\text{-OH}$ (d) $\text{C}_6\text{H}_5\text{-I} + \text{CH}_3\text{-I}$ 1
12. Phenol reacts with conc. HNO_3 to form
 (a) Salicylic acid (b) Picric acid (c) Benzoic acid (d) Phthalic acid 1

Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

- a) Both A and R are true, and R is the correct explanation of A.
- b) Both A and R are true, and R is not the correct explanation of A.
- c) A is true but R is false.

d) A is false but R is true.

- | | | | |
|-----|-----------------------|---|---|
| 13. | Assertion (A): | Rate of reaction increases with increase in temperature. | 1 |
| | Reason (R): | Number of effective collisions increase with increase in temperature. | |
| 14. | Assertion (A): | The boiling point of ethanol is higher than that of dimethyl ether. | 1 |
| | Reason (R): | Dimethyl ether molecules are associated through hydrogen bonding. | |
| 15. | Assertion (A): | A mixture of o-nitrophenol and p-nitrophenol can be separated by fractional distillation. | 1 |
| | Reason (R): | O-nitrophenol is steam volatile due to intramolecular hydrogen bonding. | |
| 16. | Assertion (A): | S_N^2 reaction of an optically active aryl halide with an aqueous solution of KOH always gives an alcohol with opposite sign of rotation. | 1 |
| | Reason (R): | S_N^2 reactions always proceed with inversion of configuration. | |

Section B

This section contains 5 questions with internal choice in one question. The following questions are very short answer type and carry 2 marks each.

- | | | | |
|-----|------|---|---|
| 17. | | Define molal depression constant. How is it related to enthalpy of fusion? | 2 |
| 18. | (i) | In a reaction, if the concentration of reactant 'X' is tripled, the rate of reaction becomes twenty-seven times. What is the order of the reaction? | 2 |
| | (ii) | State a condition under which a bimolecular reaction is kinetically a first-order reaction. Give an example of such a reaction. | |
| 19. | | Aqueous copper sulphate solution and aqueous silver nitrate solution are electrolysed by 1 ampere current for 10 minutes in separate electrolytic cells. Will the mass of copper and silver deposited on the cathode be same or different? Explain your answer. | 2 |
| 20. | (i) | Which halogen compound in the following pair will react faster in S_N^1 reaction and why? | 2 |
| | | $(CH_3)_2CHBr$ OR $(CH_3)_3CBr$ | |
| | (ii) | Why is the dipole moment of chlorobenzene lower than that of cyclohexyl chloride? | |
| 21. | | Attempt either option A or B | 2 |
| | A. | Write the equations of the reactions involved in the following: | |
| | (i) | Reimer-Tiemann reaction | |
| | (ii) | Hydroboration-Oxidation | |
| | | OR | |
| | B. | Write the equations of the reactions involved in the following: | |
| | (i) | Kolbe's reaction | |
| | (ii) | Oxymercuration-Demercuration | |

Section C

This section contains 7 questions with internal choice in one question. The following questions are short answer type and carry 3 marks each.

- | | | | |
|-----|----|---|---|
| 22. | | A solution is prepared by dissolving 5 g of non-volatile solute in 200 g of water. It has a vapour pressure of 31.84 mm Hg at 300 K. Calculate the molar mass of the solute. (Vapour pressure of pure water at 300 K = 32 mm Hg) | 3 |
| 23. | | Calculate the boiling point elevation for a solution prepared by adding 10 g of $MgCl_2$ to 200 g of water, assuming $MgCl_2$ is completely dissociated. (K_b for water = $0.512 \text{ K Kg mol}^{-1}$, Molar mass of $Mg = 24 \text{ g mol}^{-1}$ & $Cl = 35.5 \text{ g mol}^{-1}$) | 3 |
| 24. | | The conductivity of 0.2 M solution of KCl is $2.48 \times 10^{-2} \text{ S cm}^{-1}$. Calculate its molar conductivity and degree of dissociation (α).
[Given: $\lambda_{K^+}^0 = 73.5 \text{ S cm}^2 \text{ mol}^{-1}$, $\lambda_{Cl^-}^0 = 76.5 \text{ S cm}^2 \text{ mol}^{-1}$] | 3 |
| 25. | | Calculate $\Delta_r G^0$ and $\log K_c$ of the reaction at 298 K:
$Fe^{2+}(aq.) + Ag^+(aq.) \rightarrow Fe^{3+}(aq.) + Ag(s)$
[Given: $E_{Ag^+/Ag}^0 = 0.80 \text{ V}$, $E_{Fe^{3+}/Fe^{2+}}^0 = 0.77 \text{ V}$, $R = 8.314 \text{ JK}^{-1} \text{ mol}^{-1}$, $F = 96500 \text{ C mol}^{-1}$] | 3 |
| 26. | | Attempt either option A or B | |
| | A. | A first order reaction is 50% complete in 30 minutes at 300 K and in 10 minutes at 320 K. Calculate activation energy (E_a) for the reaction. | |

[Given: $R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$, $\log 2 = 0.30$, $\log 3 = 0.48$, $\log 4 = 0.60$]

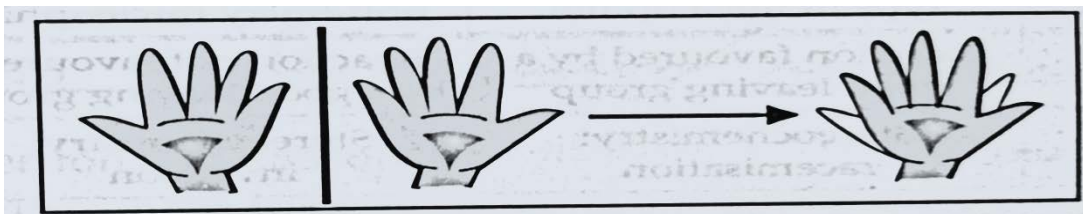
OR

- B. A first order reaction is 25% complete in 40 minutes. Calculate the value of rate constant. In what time will the reaction be 80% complete?
[Given: $\log 2 = 0.30$, $\log 3 = 0.48$, $\log 4 = 0.60$, $\log 5 = 0.69$]
27. (i) What type of nucleophilic substitution (S_N^1 or S_N^2) occurs in the hydrolysis of 2-Bromobutane to form ($\pm$) Butan-2-ol? Give reason. 3
- (ii) What happens when chlorobenzene and methyl chloride are treated with sodium metal in dry ether?
28. Write the structure of the products and write IUPAC name of the major product of the following reactions: 3
- (i) Phenol + $\text{Br}_2 + \text{H}_2\text{O} \rightarrow ?$
- (ii) $\text{CH}_3\text{MgBr} + \text{HCHO} \xrightarrow{\text{H}_3\text{O}^+} ?$
- (iii) $\text{CH}_3\text{CH}_2\text{ONa} + \text{CH}_3\text{I} \rightarrow ?$

Section D

The following questions are case -based questions. Each question has an internal choice and carries 4 (1+1+2) marks each. Read the passage carefully and answer the questions that follow.

29. The spontaneous flow of the solvent through a semipermeable membrane from a pure solvent to a solution or from a dilute solution to a concentrated solution is called osmosis. The phenomenon of osmosis can be demonstrated by taking two eggs of the same size. In an egg, the membrane below the shell and around the egg material is semipermeable. The outer hard shell can be removed by putting the egg in dilute hydrochloric acid. After removing the hard shell, one egg is placed in distilled water and the other in a saturated salt solution. After some time, the egg placed in distilled water swells up while the egg placed in salt solution shrinks. The external pressure applied to stop the osmosis is termed as osmotic pressure (a colligative property). Reverse osmosis takes place when the applied external pressure becomes larger than the osmotic pressure. 4
- (i) Why osmotic pressure is a colligative property?
Attempt either option (ii) or (iii)
- (ii) Which one of the following will have higher osmotic pressure in 1 M KCl or 1M urea solution. Justify your answer.
- OR
- (iii) What do you expect to happen when red blood corpuscles (RBC's) are placed in 0.5% NaCl solution?
- (iv) Define reverse osmosis. Name one SPM which can be used in the process of reverse osmosis.
30. The objects which are non-superimposable on their mirror image (like a pair of hands) are said to be chiral and this property is known as chirality. Chiral molecules are optically active, while the objects which are superimposable on their mirror images are called achiral. These molecules are optically inactive. The above test of molecular chirality can be applied to organic molecules by constructing models and its mirror images or by drawing three dimensional structures and attempting to superimpose them in our minds. There are other aids, however, that can assist us in recognising chiral molecules. One such aid is the presence of a single asymmetric carbon atom. 4



- (i) What are enantiomers?
Attempt either option (ii) or (iii)
- (ii) Why Butan-2-ol is a chiral molecule?
- OR
- (iii) Why Propan-2-ol is an achiral molecule?
- (iv) Why a racemic mixture containing two enantiomers in equal proportions will have zero optical rotation?

Section E

The following questions are long answer type and carry 5 marks each. All the questions have an internal choice each.

31. **Attempt either option A or B** 5
- A.(i) Calculate emf of the following cell at 25°C:
 $\text{Zn(s)} \mid \text{Zn}^{2+} (0.001\text{M}) \parallel \text{Cd}^{2+} (0.1\text{M}) \mid \text{Cd(s)}$
 Given: $E_{\text{Zn}^{2+}/\text{Zn}}^0 = -0.76\text{ V}$, $E_{\text{Cd}^{2+}/\text{Cd}}^0 = -0.40\text{ V}$, $\log 10 = 1$
- (ii) State Faraday's second law of electrolysis. How will the pH of aqueous NaCl solution be affected when it is electrolysed?
- OR**
- B.(i) Three electrolytic cell A, B, and C containing solutions of ZnSO_4 , AgNO_3 , and CuSO_4 , respectively, are connected in series. A steady current of 1.5A was passed through them until 1.45g of silver deposited at the cathode of cell B. How long did the current flow? What mass of copper and zinc were deposited? [Given: Molar Mass of Ag = 108 g mol⁻¹, Cu = 63.5 g mol⁻¹, Zn = 65.3 g mol⁻¹]
- (ii) Solutions of two electrolytes 'A' and 'B' are diluted. The Λ_m of 'B' increases 1.5 times while that of A increases 25 times. Which of the two is a strong electrolyte? Justify your answer.
32. **Attempt either option A or B** 5
- A.(i) The following result have been obtained during the kinetic studies of the reaction: $2\text{A} + \text{B} \rightarrow \text{C} + \text{D}$
- | Expt. No. | [A] / mol L ⁻¹ | [B] / mol L ⁻¹ | Initial rate of formation of D / mol L ⁻¹ min ⁻¹ |
|-----------|---------------------------|---------------------------|--|
| I | 0.1 | 0.1 | 6.0×10^{-3} |
| II | 0.3 | 0.2 | 7.2×10^{-2} |
| III | 0.3 | 0.4 | 2.88×10^{-1} |
| IV | 0.4 | 0.1 | 2.40×10^{-2} |
- Determine the rate law and the rate constant for the reaction.
- (ii) Ammonia and oxygen react at high temperature as:
 $4\text{NH}_3(\text{g}) + 5\text{O}_2(\text{g}) \rightarrow 4\text{NO}(\text{g}) + 6\text{H}_2\text{O}(\text{g})$
 In an experiment, rate of formation of NO is $3.6 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$. Calculate rate of disappearance of ammonia and rate of formation of water.
- OR**
- B.(i) Rate constant k of a reaction varies with temperature T according to the following Arrhenius equation $\log K = \log A - \frac{E_a}{2.303R} \left(\frac{1}{T}\right)$. Where E_a is the activation energy. When a graph is plotted for $\log k$ vs. $\frac{1}{T}$ a straight line with a slope of -6670 K is obtained. Calculate E_a for the reaction. ($R = 8.314 \text{ JK}^{-1} \text{ mol}^{-1}$)
- (ii) The half life period for the conversion of ammonium cyanate into urea at 303 K, at initial concentration of ammonium cyanate of 0.1 mol L⁻¹ and 0.2 mol L⁻¹ are 1152 and 568 min respectively. What is the order of the reaction?
33. **Attempt either option A or B** 5
- A.(i) Write the mechanism of acid dehydration of ethanol to yield ethene.
- (ii) How will you bring about the following conversions?
 a) Benzene to Phenol
 b) Phenol to Anisole
- (iii) Give one chemical test to distinguish between Methanol and Ethanol.
- OR**
- B.(i) Write the mechanism of acid hydration of ethene to yield ethanol.
- (ii) How will you bring about the following conversions?
 a) Phenol to Benzene
 b) Phenol to p-cresol
- (iii) Give one chemical test to distinguish between Methanol and Phenol.

BURNPUR RIVERSIDE SCHOOL, CHITTARANJAN
HALF-YEARLY EXAMINATION: (2025 – 2026)
COMPUTER SCIENCE
CLASS: XII

Time: 3 Hours**Maximum Marks: 70****Name: _____ Sec.: _____ Roll No.: _____****General Instructions:**

- This question paper contains **37** questions.
- All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions.
- The paper is divided into 5 Sections- A, B, C, D and E.
- **Section A** consists of **21** questions (**1 to 21**). Each question carries **1 Mark**.
- **Section B** consists of **7** questions (**22 to 28**). Each question carries **2 Marks**.
- **Section C** consists of **3** questions (**29 to 31**). Each question carries **3 Marks**.
- **Section D** consists of **4** questions (**32 to 35**). Each question carries **4 Marks**.
- **Section E** consists of **2** questions (**36 to 37**). Each question carries **5 Marks**.
- All programming questions are to be answered using **Python Language** only.
- In-case of **MCQ**, text of the **correct answer should also be written**.

Section - A

Select the most appropriate option out of the options given for each question or answer in short.
[21 X 1 = 21]

1. Consider the given expression: 1
NOT True AND False OR True
 Which of the following will be the correct output if the given expression is evaluated?
 (a) True (b) False (c) NONE (d) NULL
2. Identify the invalid Python statement from the following: 1
 (a) d = dict() (b) e = { } (c) f = [] (d) g = dict{ }
3. The numbered position of a letter in a string is called — 1
 (a) position (b) index (c) order (d) location
4. What is the result of this code? 1

```
def print_double(x):
    print(2 ** x)
print_double(3)
```

 (a) 8 (b) 6 (c) 4 (d) 10
5. Which of the following is not a function/method of the random module in Python? 1
 (a) randfloat() (b) randint() (c) random() (d) randrange()
6. The help(<module>) statement displays _____ from a module. 1
 (a) Constants (b) Functions (c) Classes (d) Docstrings
7. Which of the following is not a valid mode to open a file? 1
 (a) ab (b) rw (c) r+ (d) w+
8. Consider the following statement: 1

```
F = open('CONTENT.TXT')
```

 Which of the following is an invalid statement?
 (a) F.seek(1,0) (b) F.seek(0,1) (c) F.seek(0,-1) (d) F.seek(0,2)
9. The readlines() method returns — 1
 (a) str (b) a list of lines (c) a list of single characters (d) a list of integers
10. Fill in the blank: 1
 _____ topology uses hubs or switches as the central point of connection.
11. Network bandwidth is measured in the unit _____. 1
 (a) N (b) bit (c) Hz (d) Km
12. In fiber optics, the signal is carried in the form of _____ waves. 1
 (a) light (b) radio (c) infrared (d) Bluetooth
13. Which protocol holds the email until you actually delete it? 1
 (a) POP3 (b) IMAP (c) SMTP (d) FTP

14. Which of the following is the odd one out? 1
 FTP, HTTP, IMAP, HTTPS
 (a) FTP (b) HTTP (c) IMAP (d) HTTPS
15. _____ is a communication methodology designed to deliver both voice and multimedia communication over Internet Protocol. 1
 (a) VOIP (b) SMTP (c) PPP (d) HTTP
16. Pushing an element into stack already having 5 elements and stack has fixed size of 5, then _____ occurs. 1
 (a) Crash (b) Overflow (c) Underflow (d) Userflow
17. Write True or False: 1
 Stacks can be implemented by lists.
18. Data structure stack is also known as — 1
 (a) LIFO (b) FIFO (c) FILO (d) LILO
19. Write the output of the following Python code: 1
 for k in range(7, 40, 6):
 print(k + ('-'))
- Q20. and 21. are ASSERTION AND REASONING based questions.**
 Mark the correct choice as
- (a) Both A and R are true and R is the correct explanation for A.
 (b) Both A and R are true and R is not the correct explanation for A.
 (c) A is True but R is False.
 (d) A is false but R is True.
20. **ASSERTION(A):** Dictionaries are mutable, but their keys are immutable. 1
REASONING(R): The values of a dictionary can change, but keys cannot be changed because through them data is hashed.
21. **ASSERTION(A):** A function is a subprogram. 1
REASONING(R): A function exists within a program and works within it when called.
- Section – B**
- Answer the following questions in short. [7 X 2 = 14]**
22. **(A)** Differentiate explicit and implicit type conversions in Python with a suitable example. 2
 OR
(B) Differentiate break and continue statements in Python with a suitable example.
23. Predict the output of the following codes: 2
- (i) b = [[9, 6], [4, 5], [7, 7]]
 x = b[:2]
 x.append([10])
 print(x)
- (ii) b = [[9, 6], [4, 5], [7, 7]]
 x = b[:2]
 x[1].append(10)
 print(x)
24. Write down the four steps involved in the creation of a package in Python. 2
25. Differentiate read() and readlines() functions. 2
26. Expand MAC. What does this address mean and how many bits does it consist of? 2
27. Differentiate between a repeater and a bridge. 2
28. **(A)** Write a function remove_element() in Python that accepts a list and a number n. If the number n exists in the list, it should be removed, otherwise print a message saying "Element not found!!" 2
 OR
(B) Write a Python function add_contact() that accepts a dictionary phone_book, a name, and a phone number. The function should add the name and phone number to the dictionary. If it exists already, then print "Contact already exists!!" instead of updating it.

Section – C

Answer the following questions in short.

[3 X 3 = 9]

29. What is a secure communication? Differentiate between HTTP and HTTPS. 3
30. Define Stack. What basic operations can be performed on them? 3
31. **(A)** Write a function in Python to count the number of lines in a text file "STORY.TXT" which is starting with an alphabet 'A' or 'a'.

OR

- (B)** Write a function in Python to count the number of "me", "my", "My" words present in a text file "STORY.TXT". 3

Section – D

[4 x 4 = 16]

32. The code given below accepts five numbers and displays whether they are even or odd. Observe the following code carefully and rewrite it after removing all syntax and logical errors:
Also underline the corrections made.
def Evenodd()
 for i in range(5):
 num = int(input("Enter a number:"))
 if num / 2 == 0:
 print("Even")
 else:
 print("Odd")
Evenodd()
33. Write the file mode that will be used for opening the following files. Also write the Python statements to open the following files:
(i) A text file "example.txt" in both read and write mode.
(ii) A binary file "bfile.dat" in write mode.
(iii) A text file "try.txt" in append and read mode.
(iv) A binary file "btry.dat" in read-only mode. 4

34. Expand the following terms with respect to networking:
(i) MODEM (ii) WLL (iii) FTP (iv) TCP/IP
35. Write a method in Python to display the elements of the list thrice if it is a number and display the element terminated with # if it is not a number.
For Example:
list1 = [41, 'DRONE', 'ROCKET', 13, 'TANK']
The output should be:
41 41 41
DRONE#
ROCKET#
13 13 13
TANK#

Section – E

[5 x 2 = 10]

36. Write a Python Program to implement stack operations. It should be a menu-driven program to ask the user which stack operation is to be performed. 5
37. A school library is connecting computers in its units in a **LAN**. The library has 3 units as shown in the diagram below: 5

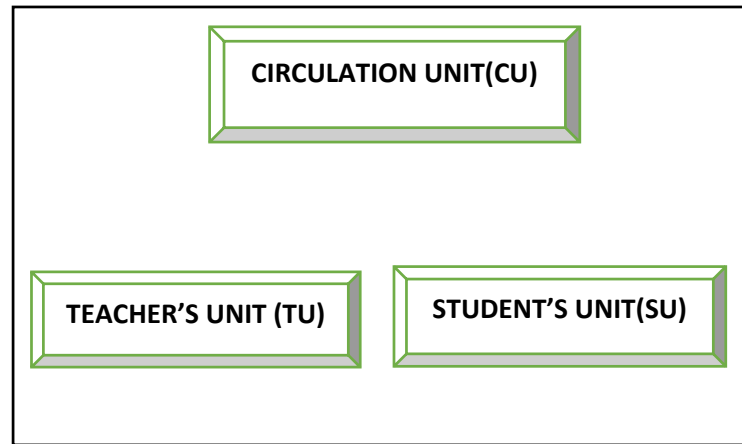
1. **Teachers' Unit:** For access of the library book by teachers
2. **Students' Unit:** For access of library books by students
3. **Circulation Unit:** For issue and return of books for teachers and students

Centre-to-centre distance & number of computers:

Connection	Distance
CU to TU	20 m
CU to SU	30 m
TU to SU	10 m

Number of computers in each unit

Unit	Computers
CU	15
TU	10
SU	10



Answer the following questions based on the above information:

- (a) Suggest the most suitable place to install the server, with a suitable reason.
- (b) Suggest an ideal layout for connecting these units for a wired connectivity.
- (c) Which device will you suggest to be installed and where it should be placed to provide internet connectivity to all the units?
- (d) Suggest the type of the most efficient and economical wire medium for connecting all the computers in the network.
- (e) The school management is planning to connect the library with the school Principal's computer, which is in her office at a distance of 50 metres.
Which type of Network out of LAN, MAN or WAN will be used? Justify your answer.

BURNPUR RIVERSIDE SCHOOL, CHITTARANJAN
HALF-YEARLY EXAMINATION: (2025-2026)
ENGLISH CORE
CLASS: XII

Time: 3 Hours**Maximum Marks: 80****NAME: _____ SEC.: _____ ROLL NO.: _____****General Instructions:**

Read the following instructions very carefully and strictly follow them:

i. This question paper has 13 questions. All questions are compulsory.

ii. This question paper contains three sections:

Section A: Reading Skills

Section B: Creative Writing Skills

Section C: Literature

iii. Attempt all questions based on specific instructions for each part. Write the correct question number and part thereof in your answer sheet.

iv. Separate instructions are given with each question/part, wherever necessary.

v. Adhere to the prescribed word limit while answering the questions.

SECTION A: READING SKILLS (22 marks)**1. Read the following passage.****12**

- (1) Suspense was over when my high school results finally came out. But I was upset. I had not done as well as I had expected. My father tried to console me. "Why are you worried? You have done very well my dear." "No, I have not Baba," I protested, controlling my tears, and wondering if I had disappointed him. "It does not really matter," he assured me. "Do you know what I got when I finished high school?" I looked into Baba's face and waited for the answer to his own question. "You know," he told me, "I have never told you this. I got just a third division. But, look at me, I have done quite well." Baba got a third division! I was almost in shock, but the thought of me having done a lot better than that made me realize that I had no reason to complain. I certainly felt better! "Everything is under control!" said Baba, smiling. That was his favourite phrase. Posted in Kolkata, my father was then a senior official in the Indian Railway Service, and an expert in goods traffic operations. He was soon to become a Director in the Railway Board. By the time he retired in 1981, he was the general manager of the Central Railways. By the time Baba passed away in November 2000, his name had found place in several hearts as well. He was open, easy to know, and full of life. We were extremely close, but I had so much more to learn about him from many things I came to know after his death.
- (2) In September 2000, he was in hospital for treatment of cancer and given just two months to live. When he found out, his reaction was an extremely rational one. He asked me to fetch files from his cupboard, so that he could explain the details of my mother's pension. He also dictated his will from his hospital bed. "Everything is under control!" After Baba's death, Satish, our old family retainer, was inconsolable. We tried to cheer him up. "Your Baba had scolded me only once in all these years!" he cried. Satish pointed to the watch on his left hand. "I had been coming late for work and everyone in the family was complaining about it," said Satish. "Then, one day, your Baba gave me this watch and told me, 'Now that you have a watch, you can't be late.'" That was the scolding Satish received. On the

fourth day after Baba's death, my sister and I had to perform a ceremony. Since several relatives were expected, we decided to order lunch from a caterer in our locality, reputed for his home cooked food. But, when we went to pay to owner, we got a surprise. He refused to accept any money! "When I wanted to start my catering business, it was your father who lent money," he told us. It seems Baba never asked for it back. Now, after four or five years, the caterer wanted to repay that debt. Of course, we made him accept the full payment for the fine food and service. "It was Baba's gift and it ought to remain so," I told him.

- (3) Some days later, there was yet another piece of information as we were preparing for the main ceremony. Vikram, my brother drove me to the local market. On recognizing our car, the parking assistant, in his twenties, came running towards us and asked why he had not seen its owner for long. We had to break the news to him and to our utter surprise, he started crying. We were really surprised by this reaction from a stranger - until the man told us that Baba used to pay his daughter's school fees and buy her books. It seems, it was on my father's advice that he had even started sending the child to school. More than three years after Baba's death, as we were looking into Baba's personal things, we came across an old file with Baba's certificates and I found among them, his high school diploma in 1937, the one he told me about 30 years earlier, about the third division that had made no difference in his life or career. It had made me see beyond mere marks and first classes as the main road to success. But there was one more fact. Baba had actually got a first division, a rare achievement in his day. Today, years after his passing, when I think of Baba, I see a man who was able to sympathise with others so easily and touch their lives in such a special way.

Answer the following questions, based on the passage above.

- i. "I was almost in shock..." 1
Pick the option in which the meaning of shock[ed] is not the same as it is in the passage.
 A. Julie was deeply in shock by her grandmother's death.
 B. He completely shocked everyone with his news.
 C. When she went to China, she experienced culture shock.
 D. When the doctor noticed that the health of the patient was not improving, he suggested the shock therapy.
- ii. Based on your reading of the passage, choose the option that lists the correct sequence of the events. 1
 1. The narrator's result was declared.
 2. The narrator's father told him about his high-school result.
 3. The narrator went to the market with his brother, Vikram.
 4. Baba passed away.
 5. The narrator realised that his father had actually got a first division.
 A. 5, 2, 1, 3, 4 B. 1, 2, 4, 3, 5
 C. 3, 2, 1, 5, 4 D. 4, 1, 3, 5, 2
- iii. Read and complete the following sentence suitably. 1
 There were some final feelings of the narrator after finding his father's old file.

Choose the correct response from the following options to complete the sentence.

The final feelings of the narrator were _____.

A. Arrogant, frustrated, hopeful

B. Satisfied, optimistic, hopeful

- iv. According to the passage, the narrator's high school result was _____ 1
- v. Why did the caterer refuse to take the money? 1
- vi. After the reading of the passage, it can be concluded that the narrator's father had a _____ approach towards the people and society. 1
- vii. What connection did the narrator's father have with the parking assistant? 2
- viii. Complete the analogy with ONE word from paragraph. 1
inconsolable: rational:: Stupid: _____
A. blue B. tearful C. cheerful. D. dreary
- ix. How did the father console the narrator? 1
- x. Describe the incident that happened with Satish and father. 2

2. Read the following passage. 10

- (1) Millions of people in the United States are affected by eating disorders. More than 90% of those afflicted are adolescents or young adult women. Although all eating disorders share some common manifestations, Anorexia nervosa, bulimia nervosa, and binge eating, each have distinctive symptoms and risks. People who intentionally starve themselves (even while experiencing severe hunger pangs) suffer from anorexia nervosa.
- (2) The disorder, which usually begins around the time of puberty, involves extreme weight loss to at least 15% below the individual's normal body weight. Many people with the disorder look emaciated but are convinced they are overweight. In patients with Anorexia nervosa, starvation can damage vital organs such as the heart and brain. To protect itself, the body shifts into slow gear: Menstrual periods stop, blood pressure rates drop, and thyroid function slows. Excessive thirst and frequent urination may occur. Dehydration contributes to constipation, and reduced body fat leads to lowered body temperature and the inability to withstand cold. Mild anaemia, swollen joints, reduced muscle mass, and light-headedness also commonly occur in anorexia nervosa.
- (3) Anorexia nervosa sufferers can exhibit sudden angry outbursts or become socially withdrawn. One in ten cases of anorexia nervosa leads to death from starvation, cardiac arrest, other medical complications, or suicide. Clinical depression and anxiety place many individuals with eating disorders at risk for suicidal behaviour.
- (4) People with bulimia nervosa consume large amounts of food and then rid their bodies of the excess calories by vomiting, abusing laxatives or diuretics, taking enemas, or exercising obsessively. Some use a combination of all these forms of purging. Individuals with bulimia who use drugs to stimulate vomiting, bowel movements, or urination may be in considerable danger, as this practice increases the risk of heart failure. Dieting heavily between episodes of bingeing and purging is common.
- (5) Because many individuals with bulimia binge and purge in secret and maintain normal or above normal body weight, they can often successfully hide their problem for years. But bulimia nervosa patients, even those of normal weight, can severely damage their bodies by frequent binge eating and purging. In rare instances, binge eating causes the stomach to rupture;

purging may result in heart failure due to loss of vital minerals such as potassium. Vomiting can cause the esophagus to become inflamed and glands near the cheeks to become swollen. As in anorexia nervosa, bulimia may lead to irregular menstrual periods. Psychological effects include compulsive stealing as well as possible indications of obsessive-compulsive disorder, an illness characterized by repetitive thoughts and behaviours. Obsessive-compulsive disorder can also accompany anorexia nervosa. As with anorexia nervosa, bulimia typically begins during adolescence. Eventually, half of those with anorexia nervosa will develop bulimia. The condition occurs most often in women but is also found in men.

- (6) Binge-eating disorder is found in about 2% of the general population. As many as one-third of this group is men. It also affects older women, though with less frequency. Recent research shows that binge-eating disorder occurs in about 30% of people participating in medically supervised weight-control programs.
- (7) This disorder differs from bulimia because its sufferers do not purge. Individuals with binge eating disorder feel that they lose control of themselves when eating. They eat large quantities of food and do not stop until they are uncomfortably full. Most sufferers are overweight or obese and have a history of weight fluctuations. As a result, they are prone to the serious medical problems associated with obesity, such as high cholesterol, high blood pressure, and diabetes.
- (8) Obese individuals also have a higher risk for gallbladder disease, heart disease, and some types of cancer. Usually, they have more difficulty losing weight and keeping it off than do people with other serious weight problems. Like anorexic and bulimic sufferers who exhibit psychological problems, individuals with binge eating disorder have high rates of simultaneously occurring psychiatric illnesses, especially depression.

Answer the following questions, based on the passage above.

- i. Complete the following suitably. 1
Obese individuals also have a risk of _____.
A. heart disease B. some types of cancer
C. gallbladder disease D. All of these
- ii. According to the passage, which of the following is correct? 1
A. Among the sufferers of anorexia nervosa, half of them will eventually develop bulimia.
B. Binge eating disorder is found mainly in children.
C. People with bulimia nervosa keep themselves in starvation.
D. More than 90% of those afflicted with eating disorders are men and old-age people.
- iii. What are the side effects of anorexia nervosa? 2
- iv. State TRUE or FALSE. 1
Binge eating disorder is found in about 30% of the general population.
- v. "Many people with the disorder look emaciated but are convinced they are overweight". The word 'emaciated' here means _____. 1
A. fat B. skeletal C. nervous D. depressed
- vi. What makes people socially withdrawn? 1
- vii. Discuss about binge-eating disorder. 2
- viii. How many cases of anorexia nervosa can have fatal consequences? 1
A. 90 per cent B. Ten out of twenty
C. 50 per cent D. 1 in 10

SECTION B: CREATIVE WRITING SKILLS (18 marks)

3. Attempt **ANY ONE** of two, in about 50 words. 4

- A. You are Praveen/ Prabha. As the Secretary, Science Club of your school, write a notice informing students about an Inter-School Science Exhibition and encouraging them to participate in it.

OR

- B. You are Pradip/Asha, Secretary of the History Club of Vidya Mandir School. Draft a notice informing students of a proposed visit to some important historical sites in your city. You may add the necessary information that is required.

4. Attempt **ANY ONE** of two, in about 50 words. 4

- A. Smt. Leelavati Khatri, your grandmother, has received an invitation from her childhood friend, residing at a distance in the same city. The invite is for the blessing ceremony and celebratory dinner, marking the birth of her granddaughter. Your grandmother wishes to attend the event but would need to be accompanied by a family member to assist her with her wheelchair. Create an appropriate reply, accepting this invitation, on behalf of your grandmother.

OR

- B. You are Amit/ Amita, a student of Newton Public School, Nagpur. The school is holding its annual function on Saturday, the 15th of September, 2025 at 4 PM. The HRD Minister, Dr. M.M.Joshi, has consented to be the chief guest. Design an invitation to be sent to the parents and other invitees.

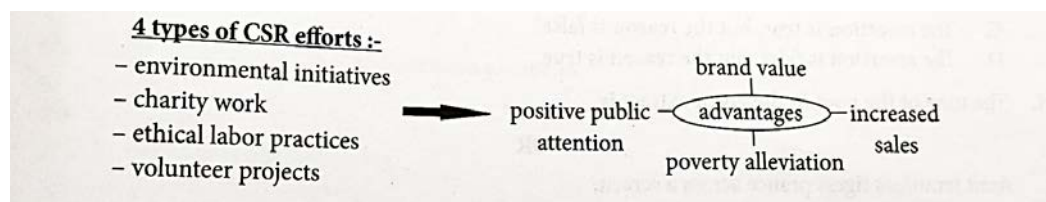
5. Attempt **ANY ONE** of two, in about 120-150 words. 5

- A. There is a flood of advertisements on television channels these days. Useless commodities and even superstitious beliefs are promoted through glamour and exaggerated presentations. Write a letter to the Editor, 'New Indian Express', about the negative influence such advertisements have on the minds of the people. You are Radha/ Ramesh of Mayur Vihar, Lucknow.

OR

- B. You are Minu Sen, an intern in a software company in Hyderabad. You feel that the growing relationship of companies with non-profit organisations has made Corporate Social Responsibility (CSR) the buzzword today. Your own involvement in one such project for your company has convinced you that CSR looks beyond the company profits and focuses on benefiting the greater community.

Write a letter to the editor of a national daily, sharing your opinion about CSR and its advantages, and provide suggestions to make it an integral part of every organisation. Use the given cues along with your own ideas to compose this letter.



6. Attempt **ANY ONE** of two, in about 120-150 words. 5

- A. The number of women in the police force seems insufficient, especially when we see the increasing involvement of women in terrorist activities.

Write an article for "The Hindustan Chronicle" on 'The Need of Having More Women in the Police Force'. You are Padma/ Praveen.

OR

- B. India is standing at the threshold of joining the developed Nations, but that is not possible till we achieve complete literacy in the country. The contribution of students may be very significant in achieving our goals. Write an article on 'The Role of the Students in Removing Illiteracy '. You are Sonali/ Sonu.

**SECTION C: LITERATURE TEXTBOOK AND SUPPLEMENTARY READING TEXT
(40 marks)**

7. Read the given extracts and answer the questions for **ANY ONE** of the two, **6**
given.

- A. It would be an exotic moment
without rush, without engines,
we would all be together
in a sudden strangeness.
(A Thing of Beauty)

- i. What kind of a moment would it be when everyone is silent? **1**
- ii. The poet is addressing the _____ in the above lines? **1**
A. audience B. readers C. spectators D. listeners
- iii. Which poetic device has been used in 'sudden strangeness'? **1**
Choose the line from below that uses the same poetic device as the one stated above:
A. To err is human; to forgive, divine.
B. And miles to go before I sleep, and miles to go before I sleep.
C. All the world's a stage, and all the men and women merely players.
D. She sells seashells by the seashore.
- iv. What would the moment feel like? **1**
- v. 'Without rush, without engines' refers to _____: **1**
A. no noise and bustle B. the people who would be at ease
C. no travelling D. no holidaying
- vi. What will happen if there are no engines and no crowd? **1**

OR

- B. In spite of all,
Some shape of beauty moves away the pall
From our dark spirits. Such the sun, the moon,
Trees old, and young, sprouting a shady boon
For simple sheep; and such are daffodils
With the green world they live in; and clear rills
That for themselves a cooling covert make
'Gainst the hot season; the mid forest brake,
Rich with a sprinkling of fair musk-rose blooms;
And such too is the grandeur of the dooms
We have imagined for the mighty dead;
(A Thing of Beauty)

- i. What moves 'the pall from our dark spirits'? **1**
- ii. What images of beauty has the poet referred to here? **1**
- iii. What does the poet mean by 'green world'? **1**
- iv. Which poetic device has been used in 'shady boon'? **1**
Choose the line from below that uses the same poetic device as the one stated above:

- A. The sweet smell of honeysuckle hung heavy in the air.
 B. Fair is foul, foul is fair
 C. Pinki is a nightingale.
 D. The wind whispered secrets through the trees.
- v. 'From our dark spirits' is a reference to _____: 1
 A. our dampened and demoralised spirits
 B. dark-coloured ghosts
 C. unhappy moments
 D. the happy side of our personality
- vi. 'Of all the unhealthy' means _____: 1
 A. ill-health B. careless ways
 C. neglect of everything D. suffering at all times

8. Read the given extracts and answer the questions for **ANY ONE** of the two, **4**
 given.

- A. Students on Ice, the programme I was working with on the Shokalskiy, aims to do exactly this by taking high school students to the ends of the world and providing them with inspiring educational opportunities which will help them foster a new understanding and respect for our planet. It's been in operation for six years now, headed by Canadian Geoff Green, who got tired of carting celebrities and retired, rich, curiosity-seekers who could only 'give' back in a limited way. With Students on Ice, he offers the future generation of policy-makers a life-changing experience at an age when they're ready to absorb, learn, and most importantly, act.
 (Journey to the End of the Earth)
- i. Students on Ice is a travelogue headed by Geoff Green. (True/False) 1
 ii. Choose the option that marks the ODD ONE OUT based on your reading of the above extract. 1
 A. Sumit donates 10% of his monthly income to the environment-friendly NGOs.
 B. Manmeet and her twin plant a new plant on their birthday every year.
 C. Vivek invests in eco-friendly cosmetics that are packaged in plastic containers.
 D. Afsana plans to decide a machine that recycles the biodegradable wastes from home.
- iii. Pick the option that characterises the celebrities based on your understanding of the extract. 1
 1. Overachiever 2. Zealous 3. Miserly 4. Impassive
 A. (1) and (2) B. (3) and (4)
 C. (1) and (3) D. (2) and (4)
- iv. List out the reasons for Green's programme. 1

OR

- B. But I've never again found the corridor that leads to the third level at Grand Central Station, although I've tried often enough. Louisa was pretty worried when I told her all this, and didn't want me to look for the third level anymore, and after a while. I stopped; I went back to my stamps. But now we're both looking, every weekend because now we have proof that the third level is still there.
 (The Third Level)
- i. Charley was not able to get to Galesburg because: 1
 A. he had less old money.
 B. the third level had vanished.

- C. the clerk did not sell him the tickets.
- D. he dropped his plan.
- ii. Why didn't Louisa want Charley to look for the third level anymore? 1
- iii. But now we're both looking." What are they looking and why? 1
- iv. "I went back to my stamps." What does it mean? 1
 - A. That Charley returned to his hobby of collecting stamps.
 - B. That Charley returned old money to the bank.
 - C. That Charley did not continue with his hobby.
 - D. That Charley went back to the post office to issue the current stamp.

9. Read the given extracts and answer the questions for **ANY ONE** of the two, given. 6

- A. The next I remember I was lying on my stomach beside the pool, vomiting. The chap that threw me in was saying, "But I was only fooling." Someone said, "The kid nearly died. Be all right now. Let's carry him to the locker room."
- Several hours later, I walked home. I was weak and trembling. I shook and cried when I lay on my bed. I couldn't eat that night. For days a haunting fear was in my heart. The slightest exertion upset me, making me wobbly in the knees and sick to my stomach.
- I never went back to the pool. I feared water. I avoided it whenever I could. (Deep Water)
- i. With reference to the extract, Douglas was vomiting because: 1
 - A. he had got severe food poisoning.
 - B. he had just been rescued from nearly drowning in the pool.
 - C. he was frightened when he saw the big man.
 - D. he had gone for a swim on an empty stomach.
 - ii. Rewrite the sentence by replacing the underlined phrase with its inference. 1

For days a haunting fear was in my heart.
 - iii. On the basis of the extract, choose the correct option with reference to the two statements given below: 1
 - I. The boy did not know how to swim.
 - II. The boy took a long time to recover from his fear.
 - A. I can be inferred from the extract but II cannot.
 - B. I cannot be inferred from the extract but II can.
 - C. I is true but II is false.
 - D. Both I and II are true.
 - iv. Identify the textual clue that allows the reader to infer that the chap threw the boy into the pool just for fun. (clue: a phrase) 1
 - v. Complete the sentence with an appropriate explanation as per the extract. 1

The slightest exertion upset the boy because _____.
 - vi. Complete the sentence by replacing the underlined word with its synonym 1

The boy felt unsteady in the knees.

OR

- B. Rudyard Kipling expressed an even more condemnatory attitude towards the interviewer. His wife, Caroline, writes in her diary for 14 October 1892 that their day was 'wrecked by two reporters from Boston'. She reports her husband as saying to the reporters, "Why do I refuse to be interviewed? Because it is immoral! It is a crime, just as much of a crime as an offence against my person, as an assault, and just as much merits punishment. It is cowardly and vile. No respectable man would ask it, much less give it,"

Yet Kipling had himself perpetrated such an 'assault' on Mark Twain only a few years before. H. G. Wells in an interview in 1894 referred to 'the interviewing ordeal', but was a fairly frequent interviewee and forty years later found himself interviewing Joseph Stalin. Saul Bellow, who has consented to be interviewed on several occasions, nevertheless once described interviews as being like thumbprints on his windpipe.

(The Interview)

- i. Why did Rudyard Kipling refuse to be interviewed? 1
- ii. According to Rudyard Kipling, the exercise of interview establishes reputation and makes them distinguished. (True/False) 1
- iii. Had Kipling not had condemnatory attitude towards the interviewer, he would have been: 1
 - A. criticising its practice.
 - B. mocking its practice.
 - C. appreciating its practice.
 - D. attacking its denunciation.
- iv. What does the phrase 'thumbprints on his windpipe' refer to? 1
- v. Which one of the following statements is NOT TRUE, according to the extract? 1
 - A. Saul Bellow once described interviews as being like thumbprints on his windpipe.
 - B. It is a crime, just as much of a crime as an offence against my person.
 - C. Rudyard Kipling expressed an even more complimentary attitude towards the interviewer.
 - D. H.G. Wells in an interview in 1894 referred to 'the interviewing ordeal', but was a fairly frequent interviewee.
- vi. Which of the following words is NOT an adjective? 1
 - A. Respectable
 - B. Frequent
 - C. Condemnatory
 - D. Interviewing

10. Answer **ANY FIVE** of the following six questions, in about 40-50 words. **2x5 = 10**

- i. What was the opinion of the Khadi clad poets of Gemini Studios about communism? (Poets and Pancakes)
- ii. Why have the poor farmers put up a new shed on the edge of the highway? (The Roadside Stand)
- iii. 'All we have to fear is fear itself.' When did Douglas learn this lesson? (Deep Water)
- iv. The author says that Seemapuri is a place on the periphery of Delhi yet miles away from it, metaphorically. What is the meaning of her statement? (Lost Spring)
- v. How does Kamala Das try to put away the thoughts of her ageing mother? (My Mother at Sixty-six)
- vi. How did Franz's feelings about M. Hamel and school change? (The Last Lesson)

11. Answer **ANY TWO** of the following three questions, in about 40-50 words. **2x2 = 4**

- i. What peculiar things does Derry notice about the old man, Mr Lamb? (On The Face of It)
- ii. Comment on any one aspect of the writing style of the author, Kalki in 'The Tiger King'.
- iii. Hana told Yumi to wash the soldier's wounds. How did Yumi react? (The Enemy)

- 12.** Answer **ANY ONE** of the following two questions, in about 120-150 words **5**
- A. Given his temperament, Edla's father would have failed in reforming the peddler. Justify the statement. How did Edla succeed?
(The Rattrap)

OR

- B. Exploitation of the poor and the downtrodden started a long time ago and 'Indigo' is a proof of that. However, the poor are still being exploited by the rich and it must be stopped.
Based on your understanding of the chapter 'Indigo', write a letter to your friend stating how you think exploitation can be defeated in the present scenario.

- 13.** Answer **ANY ONE** of the following two questions, in about 120-150 words. **5**
- A. There are many others who, like Derry and Mr Lamb, are differently-abled. Although provisions have been made to make life easier for them, the society views them with pity in their eyes. How do you think, that makes the differently-abled feel? Base your answer on what you have understood from the story 'On the face of it'. (On The Face of It)

OR

- B. Write a diary entry describing Tishani Doshi's personal experience during her journey to Antarctica. Also, state her emotional and sensory impact of the expedition?
(Journey to the End of the Earth)

BURNPUR RIVERSIDE SCHOOL, CHITTARANJAN
HALF-YEARLY EXAMINATION: (2025-2026)
MATHEMATICS
CLASS: XII

Time : 3 Hours**Maximum Marks : 80****NAME: _____ SEC: _____ ROLL NO.: _____****General Instructions :**

1. The Question paper contains 38 questions. All questions are compulsory.
2. The question paper is divided into five sections-A, B, C, D and E.
3. In Section A, Question no. 1 to 18 are multiple choice questions (MCQs) with only one correct option and Question no. 19 and 20 are Assertion-Reason based questions of 1 mark each.
4. In Section B, Question no. 21 to 25 are Very Short Answer (VSA)- type questions, carrying 02 marks each.
5. In Section C, Question no. 26 to 31 are Short Answer (SA)- type questions, carrying 03 marks each.
6. In Section D, Question no. 32 to 35 are Long Answer (LA)- type questions, carrying 05 marks each.
7. In Section E, Question no. 36 to 38 are case study-based questions, carrying 04 marks each.
7. All Questions are compulsory. However, an internal choice has been provided in 2 questions in section B, 3 questions in Section C and 2 questions in Section D and one subpart each in 2 questions of Section E.
8. Use of calculator is not allowed.

SECTION-A

This section comprises of MCQs of 1 mark each. Select the correct option (Question 1-Question 18)

1. Let $A = \{3, 5\}$ then the number of reflexive relations on A is 1
 a. 2 b. 4 c. 0 d. 8
2. A function $f: R \rightarrow R$ defined as $f(x) = x^2 - 4x + 5$ is 1
 a. injective but not surjective b. Surjective but not injective.
 c. both injective and surjective d. neither injective nor surjective
3. If $f(x) = |\cos x|$, then $f\left(\frac{3\pi}{4}\right)$ is 1
 a. 1 b. -1 c. $-\frac{1}{\sqrt{2}}$ d. $\frac{1}{\sqrt{2}}$
4. If $R = \{(x, y) : x, y \in Z, x^2 + y^2 \leq 4\}$ is a relation on the set Z, then the domain of R is 1
 a. $\{0, 1, 2\}$ b. $\{-2, -1, 0, 1, 2\}$ c. $\{0, -1, -2\}$ d. $\{-1, 0, 1\}$
5. If A and B are skew symmetric matrices of same order then AB is symmetric if 1
 a. $AB = 0$ b. $AB = -BA$ c. $AB = BA$ d. $BA = 0$
6. If $A = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$, then A^{2023} is equal to 1
 a. $\begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$ b. $\begin{bmatrix} 0 & 2023 \\ 0 & 0 \end{bmatrix}$ c. $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$ d. $\begin{bmatrix} 2023 & 1 \\ 0 & 2023 \end{bmatrix}$
7. If A and B are square matrices of order 3x3 such that $|A| = 5$ and $|B| = 3$ then $|3AB| =$ 1
 a. 135 b. 45 c. 405 d. 105
8. The area of the triangle with vertices $(-3, 0)$, $(3, 0)$ and $(0, k)$ is 9 square units, The value of K 1
 is
 a. 9 b. 3 c. -9 d. 6
9. The set of point of discontinuity of the function $f(x) = x - [x]$, is 1
 a. Q b. R c. N d. Z
10. The function $f(x) = |\sin x|$ is 1
 a. f is everywhere differentiable
 b. f is everywhere continuous but not differentiable at $x = n\pi, n \in Z$
 c. f is everywhere continuous but not differentiable at $x = (2n + 1)\frac{\pi}{2}, n \in Z$
 d. f is everywhere continuous but not differentiable
11. If $y = 3x - 4|x|$ then $\frac{dy}{dx}$ at $x = -2$ is equal to 1
 a. 7 b. -1 c. -7 d. 1
12. For the curve $\sqrt{x} + \sqrt{y} = 1$, $\frac{dy}{dx}$ at $\left(\frac{1}{4}, \frac{1}{4}\right)$ is 1
 a. $\frac{1}{2}$ b. 1 c. -1 d. 2

13. Which of the following is principle value branch of $\tan^{-1}x$ 1
 a. $(-\frac{\pi}{2}, \frac{\pi}{2})$ b. $(-\frac{\pi}{2}, \frac{\pi}{2}) - \{0\}$ c. $[-\frac{\pi}{2}, \frac{\pi}{2}]$ d. $(0, \pi)$
14. The value of $\tan(\cos^{-1}\frac{3}{5} + \tan^{-1}\frac{1}{4})$ is 1
 a. $\frac{19}{8}$ b. $\frac{8}{19}$ c. $\frac{19}{12}$ d. $\frac{3}{4}$
15. The interval in which $f(x) = x^3 + 6x^2 + 6$ is increasing is 1
 a. $(-\infty, -4) \cup (0, \infty)$ b. $(-\infty, 4)$ c. $(-4, 0)$ d. $(-\infty, 0) \cup (4, \infty)$
16. The maximum value of $\sin x \cos x$ is 1
 a. $\frac{1}{4}$ b. $\frac{1}{2}$ c. $\sqrt{2}$ d. $2\sqrt{2}$
17. $\int_1^e \frac{\ln x}{x} dx$ is equal to 1
 a. $\frac{1}{2}$ b. $\frac{e^2}{2}$ c. 1 d. ∞
18. $\int \frac{x}{(x-1)(x-2)} dx$ equals 1
 a. $\ln \left| \frac{(x-1)^2}{x-2} \right| + c$ b. $\ln \left| \frac{(x-2)^2}{x-1} \right| + c$ c. $\ln \left| \frac{(x-1)^2}{(x-2)^2} \right| + c$ d. $\ln |(x-1)(x-2)| + c$

Assertion –Reason Based Questions

- a) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion.
 b) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.
 c) Assertion is true but the reason is false.
 d) Assertion is false and reason is true.

19. **Assertion (A):** The value of the expression $\sin^{-1}\frac{\sqrt{3}}{2} + \tan^{-1}1 - \sec^{-1}\sqrt{2}$ is $\frac{\pi}{4}$. 1
Reason (R): Principal value branch of $\sin^{-1}x$ is $[-\frac{\pi}{2}, \frac{\pi}{2}]$ and that of $\sec^{-1}x$ is $[0, \pi] - \{\frac{\pi}{2}\}$
20. **Assertion(A):** If a and B are two sets having 3 and 5 elements respectively, then the total number of functions that can be defined from A to B is 5^3 . 1
Reason(R): A function from the set A to the set B relates elements of set A to elements of set B.

SECTION-B

This section comprises of 5 very short answer type questions of 2 marks each.

21. If $f(x) = \begin{cases} x^2, & \text{if } x \geq 1 \\ x, & \text{if } x < 1 \end{cases}$ Check the differentiability at $x = 1$ 2
22. Find the value of k if $\sin^{-1}\left(k \tan\left(2\cos^{-1}\left(\frac{\sqrt{3}}{2}\right)\right)\right) = \frac{\pi}{3}$ 2
23. Let R be the set of all non zero real numbers. $f: R \rightarrow R$ show that $f(x) = \frac{1}{x}$ is one –one and onto function. 2
24. (A) Find $\int \frac{dx}{\sqrt{x}+x}$ 2
- OR**
- (B) Find $\int \frac{dx}{x(1+x^2)}$

25. (A) Find the interval for which the function $f(x) = \cot^{-1}x + x$ increases. 2
OR
 (B) Find the area bounded by $y = x^2$, the x -axis and the line $x = 1$ and $x = -1$

SECTION-C

This section comprises of 6 short answer type questions of 3 marks each.

26. If $A = \begin{bmatrix} 1 & \tan x \\ -\tan x & 1 \end{bmatrix}$, show that $A^T A^{-1} = \begin{bmatrix} \cos 2x & -\sin 2x \\ \sin 2x & \cos 2x \end{bmatrix}$ 3
27. Show that the function $f(x) = |x - 3|$, $x \in R$ is continuous but not differentiable at $x = 3$ 3
28. (A) If $x = a \sin 2t(1 + \cos 2t)$ and $y = b \cos 2t(1 - \cos 2t)$, then find $\frac{dy}{dx}$ at $t = \frac{\pi}{4}$ 3

OR

- (B) If $y = Ae^{mx} + Be^{nx}$, prove that $\frac{d^2y}{dx^2} - (m + n)\frac{dy}{dx} + mny = 0$

29. Let S be the set of all real numbers and R be the relation in S, defined by $R = \{(a, b) : a \leq b^2\}$, Show that R satisfies none of reflexivity, symmetry and transitivity 3
30. (A) Sand is pouring from a pipe at the rate of $12\text{cm}^3/\text{sec}$. The falling sand forms a cone on the ground in such a way that the height of the cone is always one-sixth of the radius of the base. How fast is the height of the sand cone increasing when the height is 4 cm? 3

OR

(B) A man 1.6 m tall walks at the rate of 0.5 m/s away from a lamp post, 8 m high. Find the rate at which his shadow is increasing and the rate with which the tip of the shadow is moving away from the pole.

31. Evaluate: 3

(A) $\int \left\{ \frac{1}{\log x} - \frac{1}{(\log x)^2} \right\} dx$

OR

(B) $\int \frac{x \sin^{-1} x}{\sqrt{1-x^2}} dx$

SECTION-D

This section comprises of 4 long answer type questions of 5 marks each.

32. Prove that $\tan^{-1} \left[\frac{\sqrt{1+x^2} + \sqrt{1-x^2}}{\sqrt{1+x^2} - \sqrt{1-x^2}} \right] = \frac{\pi}{4} + \frac{1}{2} \cos^{-1} x^2; -1 < x < 1$ 5

33. If $A = \begin{bmatrix} 1 & 2 & -3 \\ 2 & 3 & 2 \\ 3 & -3 & -4 \end{bmatrix}$ and $B = \begin{bmatrix} -6 & 17 & 13 \\ 14 & 5 & -8 \\ -15 & 9 & -1 \end{bmatrix}$ then find AB and then solve the system of 5

equations :

$$X + 2y - 3z = -4$$

$$2x + 3y + 2z = 2$$

$$3x - 3y - 4z = 11$$

34. Find : $\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{dx}{1 + \sqrt{\tan x}}$ 5

OR

Find $\int \frac{e^x}{(2+e^x)(4+e^{2x})} dx$

35. Sketch the graph $y = x|x|$ and hence find the area bounded by the curve, x-axis, $x = -2$ and $x = 2$ lines. 5

OR

Find the area of the region bounded by the curve $4x^2 + y^2 = 36$ using integration.

SECTION- E

This section comprises of 3 case study / Passage-based questions of 4 marks each with subparts. The first two case study have three subparts (i), (ii), (iii) of marks 1, 1, 2 respectively. The third case study question has two subparts of 2 marks each.

36. **Case Study-1**

The palace of peace and Reconciliation, also known as the pyramid of peace and Accord is a 62-metre high pyramid in Mursultan, the capital of Kazakhstan, that serves as a non-denominational national spiritual centre and an event venue. It is designed by Foster and Partners with a stained glass apex. It has 25 smaller equilateral triangles as shown in the figure.

- | | | |
|------|--|---|
| i. | The vertices of one triangle are $(0,0)$, $(3,\sqrt{3})$ and $(3,-\sqrt{3})$, then find the area. (by determinant) | 1 |
| ii. | Find the area of a face of the pyramid. | 1 |
| iii. | (A) Using determinants, find the equation of the line joining the points $A(1,2)$ and $B(3,6)$ | 2 |

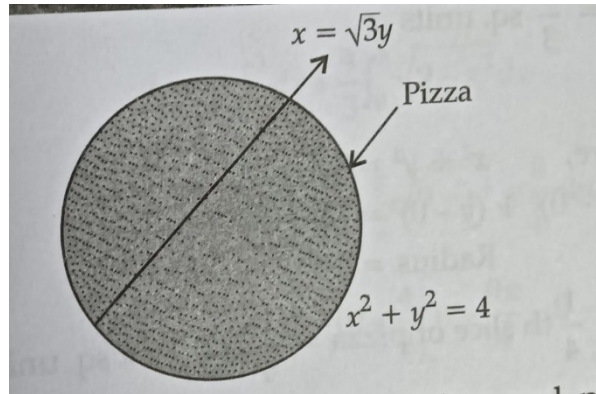
OR

(B) Find the length of an altitude of a smaller equilateral triangle.

37.

Case Study-2

Riya loves to eat pizza. On her birthday, she invites her friends for a pizza party in a famous pizza shop. She decided to cut the pizza as her birthday cake. Riya cuts the pizza with a knife. Pizza is circular in shape which is represented by $x^2 + y^2 = 4$ and the sharp edge of the knife represents a straight line given by $x = \sqrt{3}y$



- | | | |
|------|--|---|
| i. | Find the point of intersection of line and pizza as shown in the figure. | 1 |
| ii. | Write the expression for the area bounded by the circular pizza and the edge of the knife in the first quadrant. | 1 |
| iii. | (A) Find the value of the region bounded by the circular pizza and the edge of the knife in the first quadrant. | 2 |

OR

(B) Find the area of the whole pizza, and the area of each slice of pizza when Riya cuts the pizza into 4 equal pieces.

38.

Case Study-3

In a park, an open tank is to be constructed using metal sheet with a square base and vertical sides so that it contains 500 cube meters of water. Using the above information answer the following.

- | | | |
|-----|--|---|
| i. | If the length, breadth, and height of the tank are x , x , and y respectively, find the value of x at which surface area of the tank will be maximum or minimum. | 2 |
| ii. | Find the maximum and minimum surface area of the tank. | 2 |

BURNPUR RIVERSIDE SCHOOL, CHITTARANJAN
HALF-YEARLY EXAMINATION : (2025-2026)
PHYSICAL EDUCATION
CLASS: XII

Time: 3 Hours

Maximum Marks : 70

NAME: _____ ROLL NO.: _____ SEC: _____

GENERAL INSTRUCTIONS:

- 1) The question paper consists of 5 sections and 37 Questions.
- 2) Section A consists of question 1-18 carrying 1 mark each and is multiple choice question. All questions are compulsory.
- 3) Section B consists of question 19-24 carrying 2 marks each and are very short answer types and should not exceed 60-90 words. Attempt any 5.
- 4) Section C consists of question 25-30 carrying 3 marks each and are short answer types and should not exceed 100-150 words. Attempt any 5.
- 5) Section D consists of question 31-33 carrying 4 marks each and are case studies.
- 6) Section E consists of question 34-37 carrying 5 marks each and are long answer types and should not exceed 200-300 words. Attempt any 3.

(SECTION - A)
(All questions are compulsory)

- | | | |
|----|---|---|
| 1. | How many matches will be played in 2nd round, if 14 teams are participating in a knockout tournament? | 1 |
| | a) 3 b) 2 c) 4 d) 6 | |
| 2. | In which tournament, matches are played in a group or zonal basis? | 1 |
| | a) Knockout b) League c) Challenge d) Combination | |
| 3. | "Sway Back" is also known as | 1 |
| | a) Lordosis b) Kyphosis c) Scoliosis d) Round shoulder | |
| 4. | Given below are the two statements labelled as Assertion (A) and Reason (R).
Assertion (A): "Achieving health for all means doing what is best for health right from the beginning of people's lives" says WHO Director General Dr. Tedros Adhannom Ghebreyesus.
Reason (R) For children, at least 180 minutes of physical activities of which 60 minutes in moderate to vigorous intensity physical activity should be planned .In the context of the above two statements, which one of the following is correct?
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true, but R is false.
d) A is false, but R is true. | 1 |
| 5. | Psychological benefits of women participation in sports includes: | 1 |
| | a) cooperation b) emotional control c) physical fitness d) communication | |
| 6. | Which gland is associated with Diabetes? | 1 |
| | a) Endocrine gland b) Pituitary c) Pancreas d) Hypothalamus | |
| 7. | Which of the following asana is NOT used to cure Asthma? | 1 |
| | a) Tadasana b) Dhanurasana c) Parvatasana d) Bhujangasana | |
| 8. | In which year, first winter Paralympic Games were held? | 1 |

9. Which one of the following is not the age group for team sports in special Olympics? 1
a) 8-11 years b) 15 and under c) 16-21 years d) 22 and above
10. was the pioneer of the Special Olympic. 1
a) Eunice Mary Kennedy Shriver b) John Kennedy c) Bill Gates d) Barack Obama
11. Which of the following is example of macro mineral? 1
a) Copper b) Calcium c) Iodine d) Cobalt
12. What is the scientific name of Vitamin B3? 1
a) Niacin b) Pyridoxine c) Riboflavin d) Thiamin
13. Which statement is not true about food myths? 1
a) Don't drink water during meal b) Eating potatoes increases obesity
c) The fewer the carbohydrates, healthier you are d) Vitamins are essential for your body
14. Role of water in human body is to..... 1
a) regulate body temperature b) give energy c) repair cell d) protect from disease
15. For women what should be height of bench in Harvard step test? 1
a) 12 inches b) 14 inches c) 16 inches d) 18 inches
16. Rockport test is used to measure 1
a) VO3Max b) VO2Max c) VO5Max d) VO4Max
17. Which of the following is NOT a part of Rikli and Jones Senior Citizen Fitness Test? 1
a) Arm curl test b) Chair stand test c) One mile walk test d) Back scratch test
18. What is the test duration for the Arm curl test? 1
a) 1 min b) 2 min c) 30 sec d) Number of repetitions

(SECTION - B)
(Attempt any 5 questions)

19. Differentiate between seeing and special seeing. 2
20. Suggest corrective measures for flatfoot. 2
21. Enlist any four benefits of Pawanmuktasana. 2
22. What is 'Amenorrhea' in female athlete triad? 2
23. Vitamins are essential for our energy levels and boost immune system. Comment. 2
24. Enlist four test items of Johnson-Metheny Test of Motor Educability. 2

(SECTION - C)
(Attempt any 5 questions)

25. Draw a fixture of 7 teams on league basis following the cycling method. 3
26. "Now-a-days yoga plays a very important role in cure of various diseases". Justify the statement by giving suitable examples of asanas for Hypertension. 3

27. Explain factors those lead to Osteoporosis in women. 3
28. What do you mean by healthy weight? Discuss about method to control healthy body weight for life time. 1+2
29. Explain the procedure of Harvard step test in detail. 3
30. What are the benefits of physical activities for children with special needs? Explain. 3

(SECTION - D)
(Internal choices are available)

31. On the basis of picture given below, answer the following questions . 1×4



- (a) Identify the test shown in the picture above.
- (b) What are the required equipments for this test ?
- (c) What is the purpose of this test ?
- (d) The time period for this test is.....
- i) 40 sec ii) 80 sec iii) 60 sec iv) 30 sec

32. On the basis of picture given below, answer the following questions. 1×4



- (a) Carbohydrates, proteins & fats together make up..... nutrients.
- (b) Fats contain 76 percent of..... 12 percent ofand 12 percent of..... .
- (c) List any two sources of simple & complex carbohydrates.
- (d).....are the basic constituents of our cells.

33. A survey in an inclusive school setup found the discrepancies between the participation of 1×4 normal and special child during annual sports meet. Study the table given below carefully -

S.No.	Events	Normal Child (150)	Special child(10)
1.	100 Mtr.	40	5
2.	400 Mtr.	25	2
3.	Long jump	20	0
4.	High jump	15	1
5.	Relay Race	8	4

Based on the above study and your knowledge, answer the following questions :

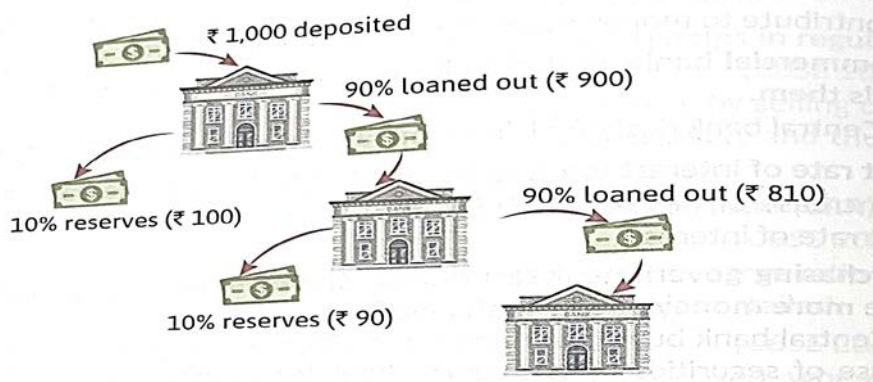
- (a) As per the above table, in.....event, there is no participation of Special Child.
(b) Participation of students with disabilities in regular physical education classes is known as.....
(c) Enlist any two strategies to make physical activities accessible for children with special needs.
(d) Motto of Special Olympic is.....

(SECTION - E)
(Attempt any 3 questions)

34. Which committees play a crucial role before the beginning of a sporting event? 5
35. What do you mean by nutritive and non-nutritive components of diet? Explain. 5
36. Define spinal curvature deformities and list their causes and precaution. 5
37. Make a table of test items listed under fitness test by SAI(age group 9-18yrs). Explain the 1+2+2 procedure and scoring of Sit and Reach test and Partial Curl Up.

6. In an economy, the autonomous consumption is Rs1000 crore and marginal propensity to consume is 0.6. The saving function for the economy would be 1
 A. $1000 + 0.6Y$ B. $1000 + 0.4Y$ C. $-1000 + 0.6Y$ D. $-1000 + 0.4Y$
 (Choose the most appropriate option)
7. Read the following statements: Assertion(A) and Reason (R). Choose the correct option from those given below: 1
Assertion (A): Value of investment multiplier varies between one and infinity
Reason (R) : When the value of marginal propensity to save is one then the value of investment multiplier is infinity.
 A. Both A and R are true and R is the correct explanation of A
 B. Both A and R are true but R is not the correct explanation of A
 C. A is true but R is false
 D. A is false but R is true.
8. From the set of statements given in **Column I** and **Column II**, choose the most appropriate option: 1
- | Column I | Column II |
|---------------------------|--|
| a. Excess demand | i) Pursued by the Central Bank |
| b. Deficient demand | ii) Inflationary gap in the economy |
| c. Shortage of demand | iii) Excess capacity exists in the economy |
| d. Monetary policy | iv) Underemployment equilibrium |
| A. a-i, b-ii, c-iii, d-iv | B. a-ii, b-iii, c-iv, d-i |
| C. a-ii, b-iv, c-i, d-iii | D. a-iii, b-iv, c-i, d-ii. |
9. Read the following statements carefully: 1
Statement 1: Full employment implies that there is zero unemployment.
Statement 2: The problem of unemployment implies the problem of voluntary unemployment.
 In the light of the given statements, choose the correct option from the following:
 A. Both the statements are true.
 B. Both the statements are false.
 C. Statement 1 is true and Statement 2 is false.
 D. Statement 2 is true and Statement 1 is false.
10. When $AD=AS$, the actual stock with the producer isthe desired stocks with the producer. 1
 A. greater than B. less than C. equal to D. not equal to
 (Choose the most appropriate option)

11. 3



Analyse the given image and identify the process described in it. If initial deposit is Rs,15000 and 20% reserve is kept then explain the process.

- 12 Do you think that increase in Marginal Propensity to Save is beneficial to the growth of GDP in India? Give valid reasons. 3
 (A)

OR

- 12 "In India Marginal Propensity to Consume is fairly high, still manufacturing sector in India shows low rate of growth due to low demand." Why?
 (B)

13. Calculate Operating Surplus and Net Exports from the following data: 4

Particulars	Amount (Rs. in crores)
i) Mixed income of self-employed	700
ii) Net factor income from abroad	150
iii) Private final consumption expenditure	2200
iv) Profits	200
v) Net indirect tax	150
vi) National Income	5000
vii) Gross domestic capital formation	1100
viii) Wages and salaries	2200
ix) Government final consumption expenditure	1300
x) Consumption of fixed capital	200

- 14 In an economy, the savings increase by Rs. 20 crore when national income increases by Rs. 100 crore. Calculate the additional investments needed to attain an increase in national income by Rs. 6000 crore. 4
- (A)

OR

- 14 Calculate the value of Marginal Propensity to save if in an economy autonomous consumption is Rs. 500 crore, ex-ante investments are Rs. 4000 crore and equilibrium level of income of the economy is Rs 18000 crore. 4
- (B)
- 15 "Additional investment carries a multiplier effect on the level of GDP". Explain the statement with the help of a diagram. 4
- 16 Will the following factor incomes be included in National Income of India? Give reasons for your answer. 6
- (A)
- Expenditure on education of children by a family.
 - Interest paid by banks on deposits by individuals.
 - Payment of interest by an individual to a bank.
 - Contribution to Provident Fund by employees.

OR

- 16 "GDP has various limitations as an index of welfare for an economy." 1
- (B)
- 17 Defend or refute the statement? Critically explain. 1
17. When credit is to be expanded the Central Bank reduces the bank rate. By this the Central Bank encourages the commercial banks to keep small proportion of their deposits as reserve, as borrowing from Central Bank is now less costly than before. This measure was helpful during COVID 19 situation also. 1

On the basis of the given text and common understanding, answer the following questions:

- What is Bank rate and how is it related to market rate of interest? 2
- How the reduction in Bank rate expands credit in the economy? 2
- How the situation of COVID 19 was tackled by the bank rate? 2

Section B : INDIAN ECONOMIC DEVELOPMENT

18. Gender –bias in the society on the eve of independence was indicated by..... 1
- life expectancy
 - mortality rate
 - death rate
 - literacy rate
- (Choose the most appropriate option)
19. Identify the correct combination of the Goals of Five Year Plans in India 1
- Growth, Equality, Modernisation, Self-reliance.
 - Growth, Equity, Modernisation, Self-reliance.
 - Development, Equality, Modernisation, Self-reliance.
 - Growth, Development, Equality, Modernisation.
- (Choose the most appropriate option)
20. Read the following statements carefully: 1
- Statement 1:** Subsidies do not add any burden on the financial health of a Nation.
- Statement 2:** Complete removal of subsidies may violate the aim of equitable distribution of income.
- In the light of the given statements, choose the correct option from the following:

- A. Both the statements are true.
 B. Both the statements are false.
 C. Statement 1 is true and Statement 2 is false.
 D. Statement 2 is true and Statement 1 is false.
21. Read the following statements: Assertion(A) and Reason (R). Choose the correct option from those given below: 1
Assertion (A): In NEP 1991, greater reliance was placed on market forces.
Reason (R) : Excessive government control had given rise to corruption, undue delays and inefficiency.
 A. Both A and R are true and R is the correct explanation of A.
 B. Both A and R are true but R is not the correct explanation of A.
 C. A is true but R is false.
 D. A is false but R is true.
22. From the set of statements given in **Column I** and **Column II**, choose the correct option: 1

Column I	Column II
a) WTO	i) provides short term loans to BOP problem
b) IMF	ii) the Central Bank
c) IBRD	iii) a multilateral trade negotiating body
d) RBI	iv) facilitates lending for reconstruction and development
A. a-i, b-ii, c-iii, d-iv	B. a-iii, b-i, c-iv, d-ii
C. a-ii, b-i, c-iii, d-iv	D. a-iv, b-iii, c-i, d-ii.
23. Identify the sources of Human Capital Formation and choose the correct option from the following to fill in the blanks. 1



- A. Expenditure on health, Expenditure on knowledge
 B. Expenditure on health, Expenditure on technical knowledge
 C. Expenditure on health, Expenditure on migration
 D. Expenditure on knowledge, Expenditure migration.
24. Read the following statements carefully: 1
Statement 1: On-the –job training helps workers in sharpening their skills.
Statement 2: The efficiency of a worker can never be changed.
 In the light of the given statements, choose the correct option from the following:
 A. Both the statements are true.
 B. Both the statements are false.
 C. Statement 1 is true and Statement 2 is false.
 D. Statement 2 is true and Statement 1 is false.
25. Read the following statements: Assertion(A) and Reason (R). Choose the correct option from those given below: 1
Assertion (A): Traditionally most credit needs of the farmers are met through institutional sources of credit.
Reason (R) : Kudumbashree was started in Kerala as a small savings bank for poor women to encourage savings.
 A. Both A and R are true and R is the correct explanation of A.

- B. Both A and R are true but R is not the correct explanation of A.
 C. A is true but R is false.
 D. A is false but R is true.
26. Distress sale by the farmers is actually the
 A. sale of crop immediately after the harvest to meet the urgent cash need of the farmer
 B. sale of crop through the commission agent
 C. sale of rotten crop
 D. sale of crop at MSP fixed by the government.
 (Choose the most appropriate option)
27. Percentage of adult population participating in production activity is known as..... 1
 A. labour force B. participation rate
 C. labour supply D. workforce.
 (Choose the most appropriate option)
- 28 "There exists a positive correlation between human capital formation and economic growth of 3
 (A) a nation."
 Defend or refute?
 Justify your answer with valid reasons.
- OR**
- 28 Sumana is working in a school. In the pursuit to attain position and income, she attended few 4
 (B) on-the-job training sessions. Explain the impact of Sumana's decision on human capital formation.
29. "Empowerment of women is related to employment of women." 3
 Defend or refute? Justify your answer.
30. Explain the main causes behind infrastructural development in India by the Britishers. 4
- 31 Atmanirbhar Bharat had been at the roots of Indian planning process. Do you agree with the 4
 (A) given statement? Justify your answer.
- OR**
- 31 "Modernisation as a planning objective shows a dichotomy with employment generation." 4
 (B) Critically assess the above statement.
32. How does investment in human capital contribute to growth? 4
 33 "NEP was more a matter of compulsion rather than an independent choice of the 6
 (A) government."
 Analyse the above statement.
- OR**
- 33 What are the major factors responsible for high growth of service sector? 4
 (B)
34. Despite multifold growth in Kisan Credit Cards, post harvest finance has not seen a commensurate increase, as banks and financial institutions hesitate to expand exposure to pledged loans. A mismatch between production and storage capacity exists in India. Addressing these gaps, the government of India launched initiatives to enhance warehousing infrastructure and boost post harvest credit, ensuring stability in agricultural pricing and rural prosperity.
 On the basis of the given text and common understanding, answer the following questions:
- i) Explain the role of micro credit system in meeting the credit requirements of the rural poor. 2
- ii) What are the measures taken by the Indian government to align the agricultural marketing system and growing production activities in rural areas? 2
- iii) Why agricultural diversification is essential for sustainable livelihood? 2