



# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 3 Hours

Subject - Accountancy  
Maximum Marks - 80

### General Instructions:

1. There is no overall choice, however, there is an internal choice of 2 questions of 1 mark, 2 questions of 3 marks, 1 question of 4 marks and 2 questions of 6 marks.
2. Attempt all parts of a question together.

- 
1. X and Y share profits and losses in the ratio of 3 : 2. Z is admitted as a new partner. Z takes  $\frac{1}{4}$ th of his share from X and Y gives  $\frac{3}{16}$ th from his share to Z. The profit & loss share of Z is

- (a)  $\frac{1}{6}$  (b)  $\frac{1}{16}$  (c)  $\frac{1}{4}$  (d) None of these [1]  
(OR)

A and B are in partnership sharing profits in the ratio of 3:2. They take C as a new partner. Goodwill of the firm is valued at Rs. 3,00,000 and C brings Rs. 30,000 as his share of goodwill in cash which is entirely credited to the Capital Account of A. New profit sharing ratio will be:

- (a) 3:2:1 (b) 6:3:1 (c) 5:4:1 (d) 4:5:1

2. Ganga, a partner withdrew Rs. 5,000 in the beginning of each quarter and interest on drawings was calculated as Rs. 1,500 at the end of an accounting year 31<sup>st</sup> March, 2023. What is the interest rate charged on Ganga's drawings?

- (a) 6% p. a. (b) 8% p.a. (c) 10% p.a. (d) 12% p.a. [1]

3. Which of the following statement does not relate to 'Reserve Capital' ?

- (a) It is a part of uncalled capital of a company  
(b) It cannot be used during the life time of a company  
(c) It can be used for writing off capital losses  
(d) It is a part of subscribed capital [1]

4. In the context of debit side of Profit and Loss Appropriation Account, pick out the odd one.

- (a) Interest on capital (b) Salary of partner  
(c) Interest on drawings (d) Commission of partner [1]

(OR)

A partnership firm has four partners. How many additional partners can be admitted into the business as per the provisions of the Companies Act, 2013?

- (a) 50 (b) 100  
(c) 46 (d) 96

5. Which of the following is not a right of a partner?

- (a) Right to inspect the books of accounts  
(b) Right to take part in the management of the firm  
(c) Right to share the profits/losses with other partners in agreed ratio  
(d) Right to receive salary at the end of every year. [1]

6. A, B and C are partners in a firm sharing profit/loss in the ratio of 2 : 2 : 1. On 31<sup>st</sup> March, 2019, C died. Books of accounts are closed on 31<sup>st</sup> December, every year. The sales for the year 2018 were Rs. 6,00,000 and the Profits of 2018 were Rs. 60,000. The sales for the period from 1<sup>st</sup> January, 2019 to 31<sup>st</sup> March, 2019 were Rs. 2,00,000. The share of deceased partner in the current year's profits on the basis of sales is \_\_\_\_\_

- (a) Rs. 20,000                      (b) Rs. 8,000                      (c) Rs. 3,000                      (d) Rs. 4,000                      [1]

7. **ASSERTION (A):** When the new partner brings his share of Goodwill in cash and it is to be paid to the existing partners privately, no entry is passed in the books.

**REASON (R):** The intention of the partners is not to show the amount/transaction relating to Goodwill for any of the reasons.

In the context of the above two statements, which of the following is correct?

**Codes:**

- (a) Both (A) and (R) are correct and (R) correctly explains (A)  
(b) Both (A) and (R) are correct but (R) does not correctly explain (A)  
(c) (A) is correct but (R) is incorrect  
(d) (A) is incorrect but (R) is correct                      [1]

8. **ASSERTION: (A)** If minimum subscription is not received within the specified period, application money shall be refunded within 15 days from the closure of the issue.

**REASON: (R)** SEBI, the Regulatory authority for listed companies prescribes that the company must receive a minimum subscription of 90% of the shares issued for public subscription before it allots the shares.

In the context of the above two statements, which of the following is correct?

**Codes:**

- (a) Both (A) and (R) are correct and (R) correctly explains (A)  
(b) Both (A) and (R) are correct but (R) does not correctly explain (A)  
(c) (A) is correct but (R) is incorrect  
(d) (A) is incorrect but (R) is correct                      [1]

9. On the basis of the following data, how much final payment will be made to a partner on firm's dissolution?

Credit balance of Capital account of the partner was Rs. 50,000. Share of loss on realization amounted to Rs. 10,000. Firm's liability taken over by him was for Rs. 8,000.

- (a) Rs. 32,000                      (b) Rs. 48,000  
(c) Rs. 40,000                      (d) Rs. 52,000                      [1]

10. A company forfeited 4,000 shares of Rs. 10 each on which application money of Rs. 3 has been paid. Out of which 2,000 shares were reissued as fully paid up and Rs. 4,000 has been transferred to Capital Reserve. Calculate the rate at which these shares were re-issued.

- (a) Rs. 10 per share                      (b) Rs. 9 per share  
(c) Rs. 11 per share                      (d) Rs. 8 per share                      [1]

11. Which of the following statement(s) is / are true?

- (i) Authorised Capital < Issued Capital  
(ii) Authorised Capital ≥ Issued Capital  
(iii) Subscribed Capital ≤ Issued Capital  
(iv) Subscribed Capital > Issued Capital  
(a) (i) only                      (b) Both (i) and (iv)  
(c) Both (ii) and (iii)                      (d) (ii) only                      [1]

12. A, B and C are partners sharing profits in the ratio of 3 : 2 : 1. C died and the new profit sharing ratio of A and B is 3 : 2. The gaining ratio will be \_\_\_\_\_  
 (a) 1 : 1 (b) 2 : 1 (c) 3 : 2 (d) None of these [1]
13. A, B and C are partners. The firm had given a loan of Rs. 20,000 to B. They decided to dissolve the firm. In the event of dissolution, the loan will be settled by \_\_\_\_\_  
 (a) Transferring it to the debit side of Realisation account  
 (b) Transferring it to the credit side of Realisation account  
 (c) Transferring it to the debit side of B's Capital account  
 (d) Partner B paying partners A and C privately [1]
14. Which of the following statement(s) is/are not correct?  
 (i) Goodwill is the present value of a firm's anticipated excess earnings  
 (ii) Goodwill is a fictitious asset  
 (iii) Goodwill is an intangible asset  
 (iv) Goodwill is affected by the location of business  
 (a) Only (i) (b) Both (i) and (iii)  
 (c) Only (ii) (d) Only (iv) [1]
15. Gain/Loss on revaluation at the time of change in profit sharing ratio of existing partners is shared by \_\_ (i) \_\_, where as in case of admission of a partner it is shared by \_\_ (ii) \_\_.  
 (a) (i) Remaining Partners, (ii) All Partners  
 (b) (i) All Partners, (ii) Old Partners  
 (c) (i) New Partner, (ii) All Partners  
 (d) None of the above [1]
16. At the time of reconstitution of a partnership firm, recording of an unrecorded asset will lead to:  
 (a) Gain to the existing partners (b) Loss to the existing partners  
 (c) Neither gain nor loss to the existing partners (d) None of these [1]
17. A, B and C were sharing profits and losses in the ratio of 4 : 3 : 2. They decided to share the future profits and losses in the ratio of 2 : 3 : 4 with effect from 1<sup>st</sup> April, 2023. An extract of their Balance Sheet as at 31<sup>st</sup> March, 2023 is given below:
- | Liabilities                  | Amount(Rs.) | Assets | Amount(Rs.) |
|------------------------------|-------------|--------|-------------|
| Workmen Compensation Reserve | 65,000      |        |             |
- At the time of reconstitution, a certain amount of Claim on workmen compensation was determined, for which B's share of loss amounted to Rs. 5,000. The Claim for workmen compensation would be:  
 (a) Rs. 15,000 (b) Rs. 70,000 (c) Rs. 50,000 (d) Rs. 80,000 [1]
18. X, Y and Z were partners sharing profits in the ratio of 2 : 2 : 1. Y died on 30<sup>th</sup> June, 2020 and profit for the accounting year ended 31<sup>st</sup> March, 2020 was Rs. 36,000. If profit share of deceased partner is to be calculated on the basis of previous year's profit, amount of profit credited to Y's Capital Account will be \_\_\_\_\_  
 (a) Rs. 3,000 (b) Rs. 2,400 (c) Rs. 3,600 (d) Rs. 2,800 [1]
19. New Life Ltd. took over the business of Old Life Ltd. and paid for it by issue of 30,000 Equity Shares of Rs. 100 each at par along with 12% Preference Shares of Rs. 1,00,00,000 at a premium of 5% and a cheque of Rs. 8,00,000. What was the total agreed purchase consideration payable to Old Life Ltd.?  
 (a) Rs. 1,05,00,000 (b) Rs. 1,43,00,000 (c) Rs. 1,40,00,000 (d) Rs. 1,35,00,000 [1]

20. On the death of a partner, Loan by the deceased partner to the firm is transferred to \_\_\_\_  
 (a) The debit of his Current account  
 (b) The credit of his Capital Account  
 (c) The debit of Remaining Partners' Capital Accounts  
 (d) The credit of Remaining Partners' Capital Accounts [1]
21. Anita and Momita are partners sharing profits and losses in the ratio of 3 : 2. The firm maintains fluctuating Capital Accounts and the balance of the same as on 31<sup>st</sup> March, 2022 was Rs. 4,00,000 and Rs. 3,50,000 for Anita and Momita respectively. Drawings during the year were Rs. 75,000 each. As per Partnership Deed interest on Capital @ 10% p.a. on Opening Capital had been allowed.  
 (i) Calculate Opening Capitals of partners given that net profit during the year 2021-'22 was Rs. 2,25,000.  
 (ii) Calculate Interest on partners' Capitals.  
 Show your working notes. [3]

**(OR)**

Sriman and Srimati were partners in a firm sharing profits equally. Their fixed capitals were Rs. 50,000 and Rs.25,000 respectively. The Partnership Deed provided interest on capital at the rate of 12% per annum. For the year ended 31<sup>st</sup> March, 2020, the profits of the firm were distributed without providing interest on capital.

Pass necessary adjustment entry to rectify the error.(Show your working notes clearly)

22. Rakhi and Shikha are partners in a firm, with fixed capitals of Rs. 2,00,000 and Rs. 3,00,000 respectively. The profit of the firm, for the year 2022-'23 is Rs. 23,200. As per partnership agreement, they share profits in their capital ratio after allowing a salary of Rs. 5,000 per month to shikha and interest on partner's capital @ 10% p.a. During the year Rakhi withdrew Rs. 7,000 and Shikha Rs. 10,000 for their personal use. As per partnership deed, salary and interest on capital are to be treated as charge against profits. You are required to prepare Profit and Loss Appropriation Account. [3]
23. Yash and Karan were partners in an interior designer firm. Their fixed capitals were Rs. 6,00,000 and Rs. 4,00,000 respectively. There were credit balances in their current accounts of Rs. 4,00,000 and Rs. 5,00,000 respectively. The firm had a balance of Rs. 1,00,000 in General Reserve. The firm did not have any liability. They admitted Radhika into partnership for 1/4<sup>th</sup> share in the profits of the firm. The average profits of the firm for the last five years were Rs. 5,00,000. Calculate the value of goodwill of the firm by capitalization of average profits method. The normal rate of return in the business is 10%. [3]
24. Lovely Ltd. forfeited 100 shares of Rs. 10 each issued at 10% premium (Rs. 8 called up) on which a shareholder did not pay Rs. 3 per share of allotment (including premium) and first call of Rs. 2 per share. Out of these 60 shares were reissued to Radha as fully paid up, for Rs. 8 per share and 20 shares to Shyam as fully paid up @ Rs. 12 per share at different intervals of time. Prepare Share Forfeiture account. [3]

**(OR)**

Guru Ltd. invited applications for issuing 5,00,000 equity shares of Rs. 10 each at a premium of Rs. 5 per share. Because of favourable conditions, applications were received for 15,00,000 shares.

Answer the following :

- (i) Name the kind of subscription.  
 (ii) Suggest the alternatives available to the Board of Directors for the allotment of shares.

25. Ark Ltd. was registered with an authorized capital of Rs. 20,00,000 divided into 2,00,000 equity shares of Rs. 10 each, payable Rs. 3 on application, Rs. 6 on allotment (including Rs. 1 premium) and balance on call. The company offered 80,000 shares for public subscription. All the money has been duly called and received except allotment and call money on 5,000 shares held by Mamta and call money on 4,000 shares held by Akash. Mamta's shares were forfeited and out of these 3,000 shares were re-issued at Rs. 9 per share as fully paid up.  
Show Share Capital in the books of the company. Also prepare notes to accounts. [4]

26. Raka and Baka were partners in a firm sharing profits and losses equally. On 31<sup>st</sup> March, 2023 their firm was dissolved. On the date of dissolution their Balance Sheet showed stock of Rs. 60,000 and creditors of Rs. 70,000. After transferring stock and creditors to Realisation Account the following transactions took place:

- (1) Raka took over 40% of the total stock at 20% discount.
- (2) 30% of the total stock was taken over by creditors of Rs. 20,000 in full settlement.
- (3) Remaining stock was sold for cash at a profit of 25%.
- (4) Remaining creditors were paid in cash at a discount of 10%.

Pass necessary Journal entries for the above transactions in the books of the firm. [4]

27. Sunita, Anita and Kavita were partners in a firm sharing profits and losses in the ratio of 5 : 3 : 2. With effect from 1<sup>st</sup> April, 2019, they agreed to share future profits and losses in the ratio of 2 : 5 : 3. Their Balance Sheet showed a debit balance of Rs. 50,000 in the Profit & Loss Account and a balance of Rs. 40,000 in the Investment Fluctuation Fund.

For this purpose, it was agreed that:

- (i) Goodwill of the firm be valued at Rs. 3,00,000.
- (ii) Investments of book value of Rs. 5,00,000 be valued at Rs. 4,80,000.

Pass the necessary Journal entries to record the above transactions in the books of the firm. [4]

**(OR)**

Mita, Gopal and Farhan were partners sharing profits and losses in the ratio of 3 : 2 : 1. On 31<sup>st</sup> March, 2020 they decided to change the profit sharing ratio to 5 : 3 : 2. On this date the Balance Sheet showed Deferred Advertisement Expenditure Rs. 30,000 and Contingency Reserve Rs. 9,000. Goodwill of the firm was valued at Rs. 4,80,000.

Pass the necessary Journal entries for the above transactions in the books of the firm on its reconstitution.

28. Madhu and Neha were partners in a firm sharing profits and losses in the ratio of 3 : 5. Their fixed capitals were Rs. 4,00,000 and Rs. 6,00,000 respectively. On 1/1/2016, Tina was admitted as a new partner for 1/4<sup>th</sup> share in the profits. Tina acquired her share of profit from Neha. Tina brought Rs. 4,00,000 as her capital which was to be kept fixed like the capitals of Madhu and Neha. Calculate the goodwill of the firm on Tina's admission and the new profit sharing ratio of Madhu, Neha and Tina.

Also, pass necessary journal entry for the treatment of goodwill on Tina's admission considering that Tina did not bring her share of goodwill in cash. [4]

29. Tom, Dick and Harry are partners sharing profits in the ratio of 5 : 3 : 7. On 1<sup>st</sup> April, 2023, Tom gave a notice to retire from the firm. Dick and Harry decided to share future profits in the ratio of 2 : 3. The adjusted capital accounts of Dick and Harry show a balance of Rs. 33,000 and Rs. 70,500 respectively. The total amount to be paid to Tom is Rs. 90,500. This amount is to be paid by Dick and Harry in such a way that their capitals become proportionate to their new profit sharing ratio.

Pass the necessary Journal Entries for the above transactions. Show your workings clearly. [4]

30. Read the following hypothetical text and answer the given questions:

Amit and Mahesh were partners in a fast-food corner sharing profits and losses in ratio 3:2. They sold fast food items across the counter and did home delivery too. Their initial fixed capital contribution was Rs. 1,20,000 and Rs. 80,000 respectively. At the end of first year their profit was Rs. 1,20,000 before allowing the remuneration of Rs.3,000 per quarter to Amit and Rs. 2,000 per half year to Mahesh. Such a promising performance for first year was encouraging, therefore, they decided to expand the area of operations. For this purpose, they needed a delivery van, a few Scotties and an additional person to support. Six months into the accounting year they decided to admit Sundaram as a new partner and offered him 20% as a share of profits along with monthly remuneration of Rs. 2,500. Sundaram was asked to introduce Rs. 1,30,000 for capital and Rs. 70,000 for premium for goodwill. Besides this Sundaram was required to provide Rs.1,00,000 as loan for two years. Sundaram readily accepted the offer. The terms of the offer were duly executed and he was admitted as a partner.

While taking up the accounting procedure for this reconstitution, the accountant of the firm Mr. Suraj Marwaha faced a difficulty. Solve it by answering the following questions.

(i) Remuneration will be transferred to the \_\_\_\_\_ of Amit and Mahesh at the end of the accounting period.

- (a) Capital accounts. (b) Loan account.  
(c) Current accounts. (d) None of the above.

(ii) Upon the admission of Sundaram the sacrifice for providing his share of profits would be done:

- (a) by Amit only. (b) by Mahesh only.  
(c) by Amit and Mahesh equally. (d) by Amit and Mahesh in the ratio of 3:2.

(iii) Sundaram will be entitled to a remuneration of \_\_\_\_\_ at the end of the year.

- (a) Rs. 2,500 (b) Rs.15,000 (c) Rs. 30,000 (d) None of these

(iv) For the amount of loan that Sundaram has agreed to provide, he is entitled to interest thereon at the rate of \_\_\_\_\_.

- (a) 5% p.a (b) 6% p.a (c) 10% p.a (d) None of these [4x1=4]

31. Following is the Balance Sheet of Arun and Barun on March 31<sup>st</sup>, 2023.

Liabilities	Amount (Rs.)	Assets	Amount (Rs.)
Creditors	76,000	Cash at Bank	17,000
Mrs. Arun's Loan	10,000	Stock	10,000
Mrs. Barun's Loan	20,000	Investments	20,000
Investment Fluctuation Reserve	2,000	Debtors 40,000	
General Reserve	20,000	Less: Provision	
Capitals:		For Bad Debts 4,000	36,000
Arun 20,000		Buildings	70,000
Barun 20,000	40,000	Goodwill	15,000
	1,68,000		1,68,000

The firm was dissolved on that date. The following were agreed :

- (i) Arun promised to pay Mrs. Arun's loan and took away stock for Rs. 8,000  
(ii) Barun took away half of the investments at 10% less.  
(iii) Debtors realized for Rs. 38,000 and creditors were paid at less of Rs. 380.  
(iv) Buildings realized for Rs. 1,30,000, Goodwill Rs. 12,000 and the remaining Investments were sold at Rs. 9,000.  
(v) An old typewriter not recorded in the books was taken by Barun for Rs. 600.  
(vi) Realisation expenses amounted to Rs. 2,000.

Prepare Realisation Account.

[6]

32. C and D were partners in a firm sharing profits and losses equally. On 31<sup>st</sup> March, 2023 their Balance Sheet was as follows:

**BALANCE SHEET OF C and D as on 31-3-2023**

LIABILITIES	AMT (RS)	ASSETS	AMT (RS)
Sundry Creditors	1,04,000	Cash at Bank	30,000
Capitals		Bills Receivable	45,000
C           2,50,000		Debtors	75,000
D <u>2,16,000</u>	4,66,000	Furniture	1,10,000
		Land and Building	<u>3,10,000</u>
	<u>5,70,000</u>		5,70,000

On 1-4-2023, they admitted E as a new partner for 1/3<sup>rd</sup> share in the profits on the following conditions:

- E will bring Rs. 3,00,000 as her capital and Rs. 50,000 as her share of goodwill premium, half of which will be withdrawn by C and D
- Debtors to the extent of Rs. 5,000 were unrecorded.
- Furniture will be reduced by 10% and 5% provision for bad and doubtful debts will be created on bills receivables and debtors.
- Value of Land and Building will be appreciated by 20%.
- There being a claim against the firm for damages, a liability to the extent of Rs. 8,000 will be created for the same.

Prepare Revaluation Account and Partners' Capital Accounts.

[6]

(OR)

Kapil, Varun and Praveen are partners sharing profits in the ratio of 3 : 2 : 1. Varun retired from the firm. On that date the Balance Sheet of the firm was as follows:

**Balance Sheet as on 31<sup>st</sup> March, 2020**

Liabilities	Amt (Rs)	Assets	Amt (Rs)
Creditors	15,000	Cash at Bank	7,600
General Reserve	12,000	Furniture	41,000
Bills Payable	12,000	Stock	9,000
Outstanding Salary	2,200	Premises	80,000
Provision for Legal Damages	6,000	Debtors                      6,000	
Capital Accounts:		Less: Provision for	
Kapil	46,000	Doubtful Debts <u>400</u>	5,600
Varun	30,000		
Praveen	<u>20,000</u>		
	1,43,200		<u>1,43,200</u>

**Additional Information:**

- Premises to be appreciated by 20%, Stock to be depreciated by 10% and Provision for doubtful debts was to be maintained @ 5% on Debtors. Further provision for legal damages is to be increased by 1,200 and Furniture to be brought up to Rs. 45,000
- Goodwill of the firm is valued at Rs. 42,000
- Rs. 50,000 from Varun's Capital account to be transferred to his loan account and balance to be paid through bank.
- New profit sharing ratio of Kapil and Praveen is decided to be 5 : 1  
Prepare Revaluation account and Capital Accounts of Partners.

33. A, B and C were partners in a firm sharing profits and losses in the ratio of 3 : 2 : 1. C died on 30<sup>th</sup> June, 2020. After all the necessary adjustments, his capital account showed a credit balance of Rs. 7,06,000. C's executors were paid Rs. 1,06,000 on 1<sup>st</sup> July, 2020 and the balance has to be paid in three equal yearly installments starting from 30<sup>th</sup> June, 2021 together with interest @ 10% p.a. on the unpaid amount. The firm closes its books on 31<sup>st</sup> March every year. Prepare C's executors' account till the amount is finally paid. [6]

34. Jyoti Ltd. invited applications for issuing 1,20,000 equity shares of Rs. 10 each at a premium of Rs. 2 per share. The amount was payable as follows:

On Application	---	Rs. 2 per share
On Allotment	---	Rs. 5 per share (including premium)
On First and Final call	---	Balance

Applications for 1,50,000 shares were received. Shares were allotted to all applicants on pro rata basis. Excess money received on applications was adjusted towards sums due on allotment. All calls were made. Manav who had applied for 3,000 shares failed to pay the amount due on allotment and first and final call. Mansi who was allotted 2,400 shares failed to pay the first and final call. Shares of both Manav and Mansi were forfeited and reissued at Rs. 9 per share as fully paid-up.

Pass necessary journal entries for the above transactions in the books of Jyoti Ltd. [6]

**(OR)**

X Ltd. has offered 50,000 equity Shares of Rs. 100 each at a premium Rs. 20, payable as follows:

Application Rs. 50  
 Allotment Rs. 40 (including premium)  
 And Balance on First and Final Call.

The Bank Account of the company has received Rs. 35,00,000 on account of share application money. X Ltd. decided to allot shares to all the applicants on Pro Rata basis. The balance in calls in arrears account at the time of allotment and first and final call amounted to Rs. 1,00,000 and Rs. 1,50,000 respectively. These shares were forfeited and re-issued at Rs. 90 per share as fully paid up.

Journalise the above transactions.





# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

### HALF YEARLY EXAMINATION (2024-25)

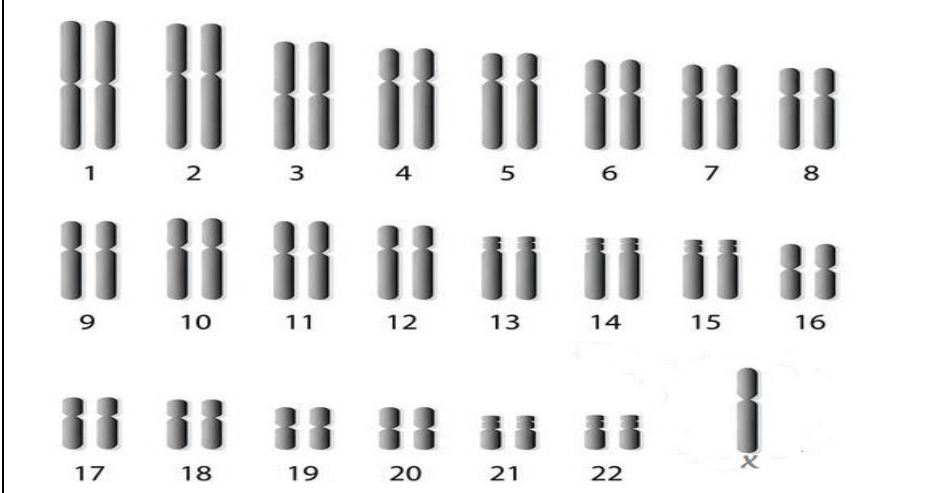
Class - XII  
Time - 3 Hours

Subject - Biology  
Maximum Marks - 70

- (i) All questions are compulsory.
- (ii) The question paper has five sections and 33 questions. All questions are compulsory.
- (iii) Section-A has 16 questions of 1 mark each; Section-B has 5 questions of 2 marks each; Section-C has 7 questions of 3 marks each; Section-D has 2 case-based questions of 4 marks each; and Section-E has 3 questions of 5 marks each.
- (iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- (v) Wherever necessary, neat and properly labeled diagrams should be drawn.

#### SECTION-A

Q.NO.	Questions	Marks
1.	Consider three plants with the following modes of pollination: Plant P: autogamy Plant Q: xenogamy Plant R: geitonogamy Which plant will not show genetic variation in the offspring: (a) Only P                      (b) Only Q (c) Only P & R                (d) Only Q & R	1
2.	Polyembryony is common in Citrus and Mango where their each ovule contains many embryo. Which of the following statements is true about polyembryony: I. More than one eggs are fertilized at the same time II. Multiple, genetically-identical offspring arise from a single embryo sac. III. Nucellar cells surrounding the embryo sac start dividing, protrude into the embryo sac and develop into the embryos. IV. Developed all embryos are non-identical and genetically diverse from their parents. (a) I & IV                      (b) II & III (c) III & IV                    (d) I & II	1

3	<p>Match the Column-I with Column-II and select correct option</p> <table><thead><tr><th colspan="2">Column-I</th><th colspan="2">Column-II</th></tr></thead><tbody><tr><td>A</td><td>Perimetrium</td><td>(i)</td><td>a cushion of fatty tissue covered by skin and pubic hair</td></tr><tr><td>B</td><td>Mons pubis</td><td>(ii)</td><td>external thin membranous wall of Uterus</td></tr><tr><td>C</td><td>labia majora</td><td>(iii)</td><td>thick layer of smooth muscle</td></tr><tr><td>D</td><td>Myometrium</td><td>(iv)</td><td>fleshy folds of tissue, which surround the vaginal opening</td></tr></tbody></table> <table><thead><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th></tr></thead><tbody><tr><td>(a)</td><td>(i)</td><td>(ii)</td><td>(iii)</td><td>(iv)</td></tr><tr><td>(b)</td><td>(i)</td><td>(iii)</td><td>(ii)</td><td>(iv)</td></tr><tr><td>(c)</td><td>(ii)</td><td>(i)</td><td>(iv)</td><td>(iii)</td></tr><tr><td>(d)</td><td>(iv)</td><td>(iii)</td><td>(ii)</td><td>(i)</td></tr></tbody></table>	Column-I		Column-II		A	Perimetrium	(i)	a cushion of fatty tissue covered by skin and pubic hair	B	Mons pubis	(ii)	external thin membranous wall of Uterus	C	labia majora	(iii)	thick layer of smooth muscle	D	Myometrium	(iv)	fleshy folds of tissue, which surround the vaginal opening		A	B	C	D	(a)	(i)	(ii)	(iii)	(iv)	(b)	(i)	(iii)	(ii)	(iv)	(c)	(ii)	(i)	(iv)	(iii)	(d)	(iv)	(iii)	(ii)	(i)	1
Column-I		Column-II																																													
A	Perimetrium	(i)	a cushion of fatty tissue covered by skin and pubic hair																																												
B	Mons pubis	(ii)	external thin membranous wall of Uterus																																												
C	labia majora	(iii)	thick layer of smooth muscle																																												
D	Myometrium	(iv)	fleshy folds of tissue, which surround the vaginal opening																																												
	A	B	C	D																																											
(a)	(i)	(ii)	(iii)	(iv)																																											
(b)	(i)	(iii)	(ii)	(iv)																																											
(c)	(ii)	(i)	(iv)	(iii)																																											
(d)	(iv)	(iii)	(ii)	(i)																																											
4	<p>The human male ejaculates about 200 to 300 million sperms during a coitus. Select the characteristics required in sperms for normal fertility:</p> <p>(a) 60 % sperms must have normal shape and size</p> <p>(b) 100% must have larger head and smaller tail with thick neck</p> <p>(c) 40 per cent of them must show vigorous motility</p> <p>(d) Both a &amp; c.</p>	1																																													
5	<p>Sterilisation techniques are generally fool proof methods of contraception with least side effects. Yet, this is the last option for the couples because:</p> <p>I. It is reversible and surgically removed some parts of reproductive tract.</p> <p>II. Of the misconception that it will reduce sexual urge</p> <p>III. It is a surgical procedure</p> <p>IV. Of lack of sufficient facilities in many parts of the country.</p> <p>Select correct option:</p> <p>(a) II &amp; III only</p> <p>(b) II &amp; IV only</p> <p>(c) II,III &amp; IV</p> <p>(d) I, II &amp; IV</p>	1																																													
6	<p>Select correct statement from the study of the given Karyotypes and Karyograms</p> 	1																																													

	<p>I. Aneuploidy and individual developed trisomic chromosomal disorder  II. Aneuploidy and individual developed monosomic chromosomal disorder  III. Turner's syndrome results due to loss of an X chromosome in human females  IV. Down's syndrome where female with rudimentary ovary and sterile.</p> <p>(a) I &amp; II  (b) II &amp; IV  (c) II &amp; III  (d) I &amp; IV</p>	
7	<p>During protein synthesis, if the available tRNAs contain the anticodons UCA, AUG, and AAG, what will be the correct sequence of bases on the mRNA strand that is selected by these tRNAs?</p> <div style="text-align: center;"> </div> <p>(a) 5'–CUUCAUUGA–3'  (b) 5'–AGUUACUUC–3'  (c) 5'–UGACAUCUU–3'  (d) 5'–AUCGCGUAU–3'</p>	1
8	<p>Under the following <i>lac</i> operon model for the regulation of gene expression in <i>E. coli</i> bacteria, select the correct statement given below.</p> <div style="text-align: center;"> </div> <p>I.P stand for promoter sequence on mRNA  II.O stand for operator sequence on DNA  III. z,y &amp; a stand for structural genes  IV.Q stand for <i>lac</i> mRNA  V.R stand for <i>lac</i> mRNA</p> <p>(a) II,III &amp; V  (b) I &amp; IV only  (c) I,III &amp; IV  (d) II &amp; IV only.</p>	1

9	<p>With regard to mature mRNA in eukaryotes:</p> <p>(a) Exons and introns do not appear in the mature RNA</p> <p>(b) Exons appear but introns do not appear in the mature RNA</p> <p>(c) Introns appear but exons do not appear in the mature RNA</p> <p>(d) Both exons and introns appear in the mature RNA</p>	1
10	<p>In pigeons, one gene controls the appearance of a crest on the head. The allele <b>C</b> (smooth head) is dominant to allele <b>C'</b> (crested head).</p> <p>In a population of pigeons, the frequency of the allele responsible for a smooth head is 0.7 and for a crested head, it is 0.4.</p> <p>Which of the following conditions should be satisfied for the population to be in Hardy-Weinberg equilibrium?</p> <p>(a) The sum total of the frequency of C and C' is equal to 1.</p> <p>(b) The sum total of the frequency of C and C' is less than 1.</p> <p>(c) The sum total of the frequency of C and C' is more than 1.</p> <p>(d) Cannot be said without knowing the frequency of CC' individuals.</p>	1
11	<p>A population of grey tree frog lives on deciduous trees where they blend well in with the bark. Some members of the population have variations in body colour - with different shades of grey as well as yellow on their ventral side.</p> <p>Due to changes in the environmental conditions, yellow lichen start growing on the trees. The grey tree frogs can now be easily spotted by predators such as birds and snakes against the yellow background.</p> <p>Which of the following BEST describes 'survival of the fittest' in this scenario?</p> <p>(a) Only the biggest and strongest tree frogs will survive and reproduce.</p> <p>(b) Tree frogs will change their colour to yellow to avoid being eaten by predators.</p> <p>(c) Some tree frogs that might have slightly yellowish skin will survive and reproduce.</p> <p>(d) Tree frogs with slightly yellowish skin will feed on gray tree frogs to eliminate them.</p>	1
12	<p>Which of the given statements is correct in the context of visualizing DNA molecules separated by agarose gel electrophoresis?</p> <p>(a) DNA can be seen in visible light</p> <p>(b) DNA can be seen without staining in visible light</p> <p>(c) Ethidium bromide stained DNA can be seen in visible light</p> <p>(d) Ethidium bromide stained DNA can be seen under exposure to UV light</p>	1

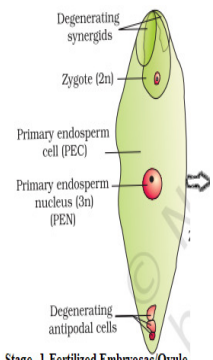
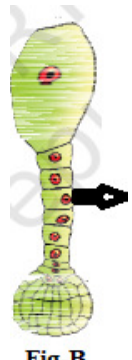
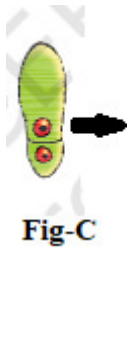

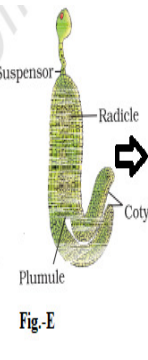

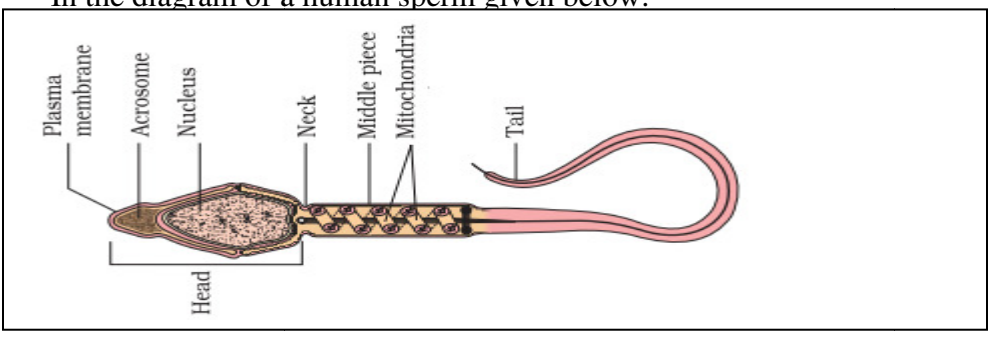
Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

- (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 & R both are false.

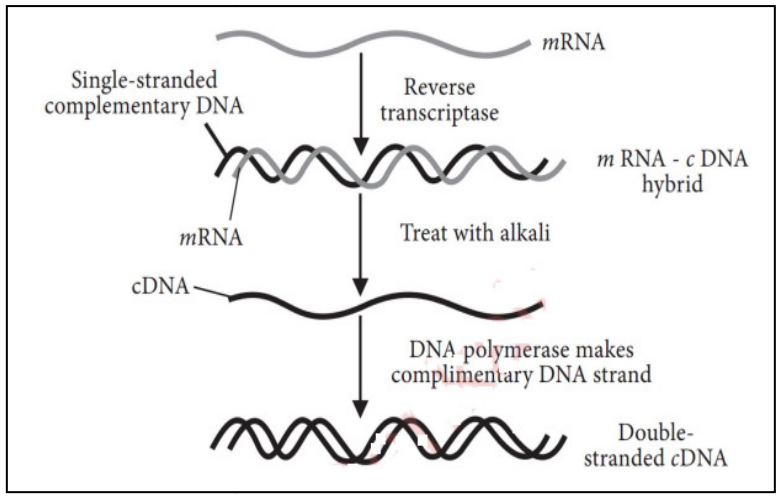
13	<b>Assertion [A]:</b> Natural methods work on the principle of avoiding chances of ovum and sperm meeting. <b>Reason[R] :</b> In periodic abstinence, the couples avoid coitus from day 10 to 12.	1
14	Assertion[A] : Genes which code for a pair of contrasting traits are known as alleles. Reason[R]: Mendel proposed that something was being stable and passed down, unchanged from parents to offsprings through gametes.	1
15	<b>Assertion [A]:</b> In transcription, the strand with 3'→5' polarity acts as the template strand. <b>Reason[R] :</b> The enzyme RNA polymerase catalyses the polymerisation in only one direction, i.e. 5'→3'	1
16	<b>Assertion [A]:</b> Genetic makeup serves as the primary factor in shaping the phenotype of a species and not vice versa. <b>Reason[R] :</b> Adaptation involves the phenotype's interaction with the environment, leading to changes in genetic makeup over generations.	1

### SECTION- B

17.	(a) List some STIs that are transmitted through means other than sexual intercourse. (b) What causes deter infected persons from seeking timely detection and proper treatment?	2
18.	A colour-blind father will not have a colour-blind son. State if the above statement is true and justify your answer if the mother is homozygous for the: (a) colour blind trait (b) normal vision trait	2
19.	Over the years, researchers have gathered enough evidence to suggest that RNA was the first genetic material which was slowly replaced by DNA. Give two reasons why RNA was replaced by DNA as the genetic material.	2
20	In a population of birds, individuals with intermediate beak sizes can effectively feed on a range of available seeds while birds with either small or large beak sizes find it difficult to access certain seeds.	2

	<p>(a) Which birds are more likely to be naturally selected?</p> <p>(b) Based on (a), which type of natural selection does this phenomenon exemplify?</p> <p style="text-align: center;">OR</p> <p>(a) What is founder effect?</p> <p>(b) Among the five factors that are known to affect Hardy-Weinberg equilibrium, three factors are gene flow, genetic drift and genetic recombination. What are the other two factors?</p>	
21.	<p>(a) What does H in 'd' and 'III' refer to in the enzyme Hind III?</p> <p>(b) How does one visualize DNA on an agarose gel?</p>	2
<b>SECTION-C</b>		
22.	<p>(a) Although majority of flowering plants produce hermaphrodite flowers, in some species, pollen release and stigma receptivity are not synchronised. Why have these plants adapted to this condition?</p> <p>(b) Differentiate between parthenocarpy and apomixes.</p> <p style="text-align: center;">OR</p> <p>The following figures depict various stages of embryonic development in a dicot plant, arranged non-systematically. Arrange them in the correct sequential order and name each stage accordingly.</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;">       </div>	3
23.	<p style="text-align: center;">In the diagram of a human sperm given below:</p>  <p>(a) What is the role of the acrosome?</p> <p>(b) Only one sperm is able to fertilise the egg. How is this ensured?</p> <p>(c) Why does the middle piece have a lot of mitochondria?</p>	3

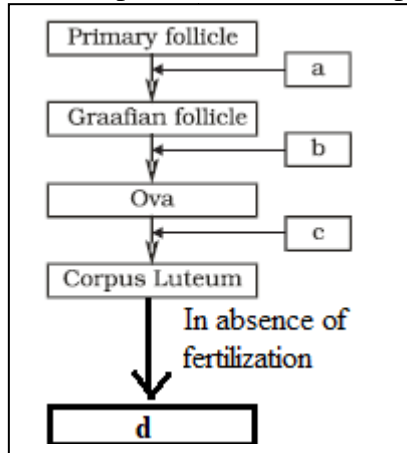
24.	<p><b>Answer the following questions:</b></p> <p>(i) Based on the site of fertilisation, state one difference between Intra-Uterine Transfer (IUT) of embryo and Intra-Uterine Insemination (IUI).</p> <p>(ii) All Assisted Reproductive Technologies (ARTs) require the extraction of the female gamete from the ovary. Is this statement TRUE or FALSE? Give a reason.</p> <p>(iii) State one characteristic each of the donor and recipient's reproductive system that enables them to participate in Gamete Intra Fallopian Transfer (GIFT).</p>	3
25.	<p>(a) Define aneuploidy.</p> <p>(b) Describe the individuals having following chromosomal abnormalities.</p> <p>(i) XXY</p> <p>(ii) XO</p>	3
26.	<p>Given below is a DNA sequence.</p> <p>5' - TAACGATCGTACATGGAT - 3'</p> <p>Identify the mRNA sequence that is transcribed from this DNA sequence.</p> <p>Can this sequence be translated? Give a reason to support your answer.</p> <p>[Note: Assume no post-transcriptional and post-translational modifications will take place.]</p>	3
27.	<p>Prokaryotic and eukaryotic cells have distinct flagella with differences in structure and mechanism. Prokaryotic flagella are helical and driven by a rotary motor powered by ion flow. Eukaryotic flagella feature a 9+2 microtubule arrangement, propelled by microtubule sliding via dynein motor proteins.</p> <p>(a) Identify if the above can be classified as homologous or analogous structures. Justify your answer</p> <p>(b) Differentiate between Divergent and convergent evolution.</p>	3
28.	<p>(a) What are the basic steps involved in genetically modifying an organism?</p> <p>(b) Differentiate between exonuclease and endonuclease.</p> <p>(c) What is the name of the first restriction endonuclease discovered?</p>	3
<p style="text-align: center;"><b>SECTION-D</b></p> <p>Q.29&amp;30 are case based questions. Each question has 3 subparts with internal choice in one subpart.</p>		
29.	<p><b>Case Study: Haplo-Diploidy Sex Determination in Honey Bees.</b></p> <p>Honey bees (<i>Apis mellifera</i>) exhibit a unique sex determination system known as haplo-diploidy. This system is a form of sex determination that results in males (drones) have one set of chromosomes, and females (queens and workers) they have two sets of chromosomes.</p> <p>The haplo-diploid system has significant evolutionary implications. It promotes kin selection and altruistic behavior among workers since they are more closely related to their sisters (workers) than to their own offspring. This genetic structure underpins the highly cooperative nature of honey bee colonies.</p> <p>(a) What are the ploidy levels of male and female honey bees, and how many chromosomes do they have?</p> <p>(b) What special features make this type of sex determination unique?</p>	4

	<p>(c) Justify with a flow diagram: "Males do not have fathers and thus cannot have sons, but they have grandfathers and can have grandsons." OR</p> <p>(i) What type of reproduction occurs when an unfertilized egg develops into a male bee?</p> <p>(ii) Although both worker bee and queen bee are females, why are only queen bee fertile while worker bee are sterile?</p>	
30.	<p><b>Case Study: Recombinant DNA technology.</b></p> <p>The DNA, which is transferred from one organism into another by joining it with the vehicle DNA is called passenger or foreign DNA. Generally three types of passenger DNAs are used. These are complementary DNA (cDNA), synthetic DNA (sDNA) and random DNA. Complementary DNA (cDNA) is synthesized on RNA template (usually mRNA) with the help of reverse transcriptase. Synthetic DNA (sDNA) is synthesized on DNA template or without a template. Random DNA are small fragments fanned by breaking a chromosome of an organism in the presence of restriction endonucleases.</p>  <p>(a) Write the name of DNA which is developed from the template independently or without the help of template DNA.</p> <p>(b) Give TWO reasons why it is important to introduce the gene/s of interest in a vector and then into the host cell or insert it directly into the host chromosomal genome.</p> <p>(c) Preferably, the gene of interest and the vector are cut with the same restriction enzyme. Is this statement true? Give a reason to support your answer. OR</p> <p>(i) What is recognition sequence?</p> <p>(ii) How can we distinguish transformant DNA from nontransformant mass?</p>	4



## SECTION-E

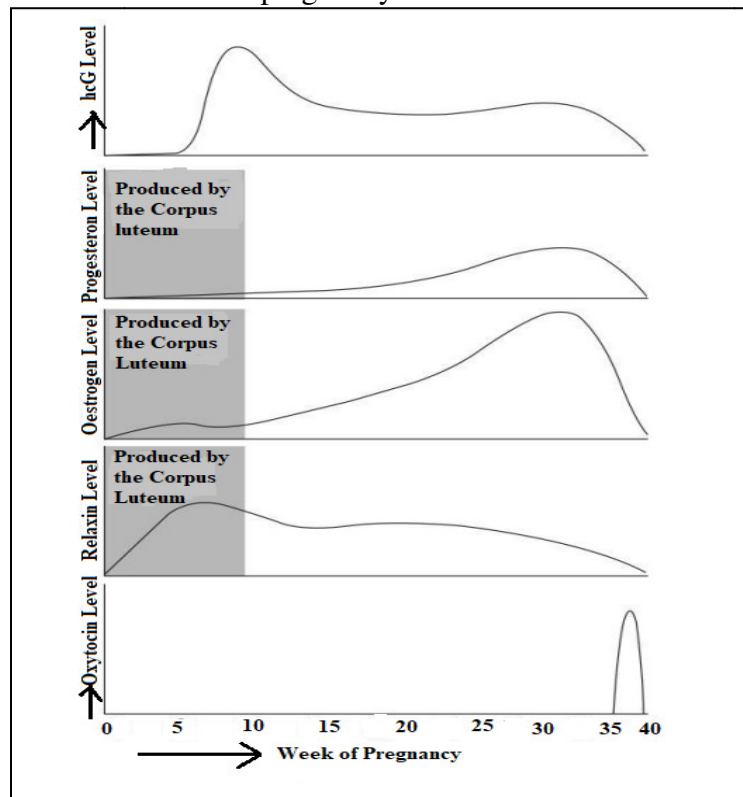
31. (a) Given below is a flow chart showing ovarian changes during menstrual cycle. Fill in the spaces [a, b & c] giving the name of the hormones responsible for the events shown and space 'd' as fate of corpus luteum.



- (b) Why is menstrual cycle absent during pregnancy.  
 (c) Meiotic division during oogenesis is different from that in spermatogenesis.  
 Explain how and why?

**OR**

The image below shows the levels of various hormones measured in a human female throughout the course of her pregnancy.



	<p>Based on the image, answer the following questions.</p> <p>(a) In which week of pregnancy does the corpus luteum degenerate?</p> <p>(b) Which hormone peaks around the time in (a)? Name the organ that secretes it.</p> <p>(c) Name three hormones from the above image that are secreted by the ovary.</p> <p>(d) Which hormone level rises near the end of pregnancy? Mention its role.</p> <p>(e) Name of hormones secreted ONLY during pregnancy:</p> <p>(i) Which one has low levels in early weeks of pregnancy?</p> <p>(ii) Which one starts declining 15 weeks before parturition?</p>	
32.	<p>(a) Define linkage &amp; Recombination. Write about relation between linkage and recombination.</p> <p>(b) The pedigree chart given below shows a particular trait which is absent in parents but present in the next generation irrespective of sexes. Draw your conclusion on the basis of the pedigree.</p> <p style="text-align: center;"><b>OR</b></p> <p>A gardener has been planting white flowers that grow on the terminal ends of the plant in a garden for several months. One day, a purple flower along the terminal end of the plant grows. The gardener wants to know if these flowers would give rise only to purple terminal flowers if pollinated. She knows that purple axial alleles are recessive over white terminal ones.</p> <p>(a) What are the possible genotypes of the new purple flower that sprouted?</p> <p>(b) If she wants to use only one generation to determine its genotype, what should she do?</p> <p>(c) With the help of a Punnett grid/s, help her make inferences to arrive to the conclusion she desires.</p>	5
33.	<p>With the help of experiments done by various scientists over 40 years, it was finally concluded that DNA is the genetic material.</p> <p>(a) Which theory explains the flow of genetic information from DNA to protein, and how does it occur?</p> <p>(b) What were the conclusions drawn from Griffith's experiments using the S and R strains in mice?</p> <p>(c) Briefly describe the unequivocal proof that led to the conclusion that DNA is the genetic material.</p> <p style="text-align: center;"><b>OR</b></p> <p>(a) Why is RNA processing an essential step in eukaryotes? Explain each step sequentially.</p> <p>(b) What is the charging of tRNA? Describe the components of the initiation complex for translation.</p>	5



# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII

Time - 3 Hours

Subject - Business Studies

Maximum Marks - 80

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### **General Instructions:-**

*Read the following instructions very carefully and strictly follow them:*

1. This question paper contains 34 questions. All questions are compulsory.
  2. Marks are indicated against each question.
  3. Answers should be brief and to the point.
  4. Answers to questions carrying three marks may be from 50 to 75 words.
  5. Answers to questions carrying four marks may be in about 150 words.
  6. Answers to questions carrying six marks may be in about 200 words.
  7. Attempt all parts of a question together.
- 

1. Identify the reason which makes management important in the light of the fact that generally seen that individuals in an organisation resist change as a change often means moving from a familiar secure environment into a newer and a more challenging one  
(a) Management helps in achieving group goals  
(b) Management creates a dynamic organisation  
(c) Management increases efficiency of the organisation  
(d) Helps in the development of the society (1)
2. Allo, a mobility platform is in the process of laying off 400 - 500 employees in a move aimed at deriving cost efficiency. Which objective of management will the firm not be able to achieve by carrying out this process?  
(a) Efficiency  
(b) social  
(c) profit  
(d) Survival (1)
3. In "Delight Ice Cream" limited "decision making authority is concentrated at the top level and no authority has been delegated amongst the subordinates. On the other hand in" Tasty ice cream limited "a big organisation as compared to" Delight Ice Cream limited", decision making authority is always delegated among more than one person identify the principle of management discussed above  
(a) Stability of personnel  
(b) Centralisation and Decentralization  
(c) Authority and Responsibility  
(d) Scalar chain (1)
4. What is the primary strategic focus of the company, considering it's "The complete Man" tagline, top position in the men's wear industry, and long standing collection that has enriched a modern Gentleman's wardrobe for decades?  
(a) ensuring ethical Sourcing  
(b) reinforcing cultural heritage  
(c) establishing a Unique Identity  
(d) maximising production efficiency (1)

5. The GST Council during the 50th meeting resolved a prolonged debate on the tax treatment of online gaming, casinos and horse racing , deciding to impose a 28% levy on the bets and wagers for all three activities and amend the GST laws to include online gaming .Which of the following is the most likely to impact of the GST Councils decision on the businesses in the industry
- The cost of doing business will increase ,leading to higher prices for consumers
  - Businesses will move their operations to other countries with lower tax rates
  - The government will receive more revenue from the taxes
  - The government will become more competitive
- (1)
6. \_\_\_\_ is considered a major element of the political environment
- The extent and nature of Government intervention in Businesses
  - Planned Outlay in Public and Private Sectors
  - Expectations from the work force
  - Administrative order issued by Government authorities
- (1)
7. Which step in the process of 'Planning', function of Management Weighs Pros and cons of each alternative?
- Developing premises
  - Identifying alternative courses of action
  - Evaluating alternative courses of action
  - Selecting an alternative
- (1)
8. A Strategy is a comprehensive plan and will not include this dimensions
- Determining long term objectives
  - Adopting particular course of action
  - The ends which the management seeks to achieve by its operations
  - Allocating resources necessary to achieve the objective
- (1)
9. Match the Following by choosing the correct option

COULMN A	COULMN B
(i) Anticipate changes	(a) Planning.
(ii) Planning decides in advance how work. is to be done.	(b) Reduces the risk of uncertainty.
(iii) Establishing standards for controlling.	(c) Promotes innovation.
(iv) Planning encourages new ideas.	(d) Provides directions.

- (i) - (a), (ii) - (b), (iii) - (c), (iv) - (d)
  - (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c)
  - (i) - (c), (ii) - (d), (iii) - (a), (iv) - (b)
  - (i) - (d), (ii) - (a), (iii) - (b), iv - (c)
- (1)
10. As span of Management increases in an organisation the number of levels of management in the organisation -----
- Increases
  - Decreases
  - Remains unaffected
  - None of the above
- (1)

11. **Assertion (A):** The lack of incentive within an organisation leads to high rate of employee turnover  
**Reason (R):** Motivation helps to reduce absenteeism in the organisation  
(a) Both the statement (A )and( R )are correct and (R )is the right explanation of (A)  
(b) Both the statement (A) and (R) are correct but (R) is not the right explanation of (A)  
(c) Statement (A) is correct but statement (R) is incorrect  
(d) Both statement (A) and statement (R) are incorrect. (1)
12. **In statement I:** An Autocratic leader follows a two-way communication model  
**In Statement II:** An Autocratic leader does not wish to be contradicted  
(a) Both the statement I and statement II are true  
(b) Both statement I and statement II are false.  
(c) Statement I is true but statement II is false  
(d) Statement I is false but statement II is true (1)
13. Responsibility is derived from \_\_\_\_  
(a) Authority  
(b) Formal position  
(c) Accountability  
(d) All the above (1)
14. The process of defining and grouping the activities of the enterprise and establishing authority responsibility relationship among them is  
(a) Directing  
(b) Staffing  
(c) Management  
(d) Organising (1)
15. Name the concept which explains the manner in which decision making responsibilities are divided among the hierarchical levels  
(a) Organisational structure  
(b) Span of Management  
(c) Delegation  
(d) Decentralization (1)
16. A bottle of "Antidandruff Shampoo" mentions "Clean your hair and get rid of the dandruff in one squeeze" the product related decision involved  
(a) Branding  
(b) Product quality  
(c) Packaging  
(d) Labelling (1)
17. Name the function of Marketing which is effective in bringing repeat sales from customers and developing brand loyalty for a product  
(a) Standardisation and grading  
(b) Promotion  
(c) Customer support service  
(d) Packaging and Labelling (1)

18. "Product Cost" as a factor affecting price determination of a product includes
- (a) Cost of producing, distributing and selling of the product
  - (b) Utility provided by the product
  - (c) Nature and degree of competition
  - (d) Maximising profit in the short run
- (1)
19. A brand or a part of the brand that is given legal protection is called -----
- (a) Brand Mark
  - (b) Trade Mark
  - (c) Brand
  - (d) Brand name
- (1)
20. Harshita Verma has set up a factory to manufacture herbal hand sanitizers, made in Meerut. The size and shape of the bottle in which the product are packed especially designed so that it should be convenient to handle and to be used by the customer. The bottle in which the sanitizers are packed is a part of
- (a) Primary packaging
  - (b) Secondary packaging
  - (c) Territory Packaging
  - (d) Both secondary and tertiary packaging
- (1)
21. Management is an inexact Science do you agree? Explain stating reasons. (3)
22. Raj and Simran are both qualified surgeons and good friends. After obtaining a certificate of practice they decide to pursue their career of their own choice. Raj starts an 'Eye Care Clinic' in the city where Simran joins a government hospital in a small village. They both meet each other after a long time in a party. Raj invites Simran to visit his eye care center and she accepts the invitation and finds that there is a fixed place for everything and everyone, and it is present there so there is no hindrance in the activities of the clinic. Also Raj tends to replace "I" with "We" in all his conversations with the staff members. Later on Raj shares with her that he always deals with the lazy staff sternly only to send the message that everyone is equal to his eyes.
- In the context of the above case identify and explain the various principles of management that Raj is applying for the successful management of his "Eye Care Centre." (3)
23. Bitcoin is a cryptocurrency and world wide payment system. It is the first decentralized digital currency as the system works without a central bank or single administrator. The network is peer to peer and transaction takes place between users directly without an intermediary. These transactions are verified by network nodes through the use of cryptography and recorded in a public distributed Ledger called the Blockchain. Bitcoin was invented by an unknown person or group of persons under the name Satoshi Nakamoto and released as open source software in 2009 in the banking sector across the world.
- Identify and explain any two dimensions of business environment being referred to in the above case. (3)
24. Explain **Autocratic** and **Free Rein Leadership**. (3)

25. Fast runners has become one of the most recognised Athletic brands in India. It deals in a wide variety of sportswear, however off late it has been facing difficulty in keeping its inventory under control. In 2022 the company adopted an inventory management software which helped it to predict items that could sell best and prepare the company to meet the demand. This has helped the company in providing better customer satisfaction by making the goods physically available to them.

- State the three activities other than the one discussed above, that Fast Runners should undertake in order to ensure the availability of its products at the right place at the right time and in right quantity. (4)

26. Distinguish between Delegation and Decentralisation on the basis of (4)  
(a) Nature. (b) Freedom of action (c) Status . (d) Scope.

27. Explain, (a) Employment Interview (4)  
(b) Selection Tests and types of selection tests.

OR

Estimating manpower requirements is the first step of -----'Function of management  
Enumerate and explain the other four steps followed for the same

28. Public transport corporation has hired 1000 buses for the different routes for the passengers of a metropolitan city. Most of the 3000 Crewmen (drivers, conductors, helpers etc) of these buses have been found to be wanting in satisfactorily dealing with the public and daily commuters. They seem to be little interested in the job and the job seems to have lost all meaning .

(i) As a manager of the public transport company what measures do you suggest to improve working of the crewmen in question?

(ii) Is it possible to modify the behaviour by planning a suitable type of training?  
suggest any two types of the same. (4)

29. Pallavi started a wedding planner company" Dreams Unlimited" in 2016 and her target was to be among the top 10 companies in the field within the next three years. And for this she employed people having different skills. She worked hard and United the efforts of different people to achieve this ,The requirement of the customers in this industry changed very fast and the company adapted to keep pace with the changing environment .As planned the company achieved its targets within Three years . All the employees of the Organisation were happy and satisfied and the effect of management was noticeable in the Organisation.

The way Pallavi was managing her business highlights some of the features of Management.

By QUOTING LINES from the above paragraph explain any TWO features. (4)

OR

ENUMERATE the Designations of Supervisory level of Management and its Functions  
(any four )

30. (i) ENUMERATE the steps in planning Process.

(ii) Explain, (a) Budget and (b) Programme as the type of single use plan. (4)

31. Kunal joined as a Shop Level Manager in the production department of a textile company in the year 2005. Because of his good work he became the Deputy Production Manager of the company in the year 2010. He had Status and Prestige and was well respected by all the company. On 1st March, 2019 he was promoted as the General Manager' of the company. Kunal was very happy on his promotion as now he had become what he was capable of becoming as a good manager, Kunal decided to motivate his subordinate after understanding the Need Hierarchy theory which is based on the various assumption he realised that people's behaviour is based on their needs and the manager can influence the behaviour of the employees by satisfying their needs .
- (a) One of the assumptions of the need hierarchy theory is stated in the above paragraph state the other **Three Assumptions** on this theory.
- (b) State the need of Kunal which are being satisfied through Promotion. (6)
32. Explain the nature of principles of Management (6)
- OR**
- Explain the following.
- (a) Motion study
- (b) Standardization and Simplification
- (c) Subordination of Individual interest to General interest
- (d) Differential wage rate system.
33. Sweets and more is one of the most important popular brands for Snacks and Sweets .It offers a wide variety of Sweets Namkeen cookies and frozen foods .Its organisational structure comprises of separate business units in each of the above category .Each of these unit have a manager responsible for the performance having authority over the unit. Moreover iwithin each unit it is multi Functional there is a need for different functions like production marketing finance Though each type of organisation structure increase cost because of duplication of the activity across product, but it provides a proper basis for performance measurement as revenue and cost related to each of these business unit can be easily identified.
- (a) identify the organisation structure of "Sweets and More "
- (b) State Three Advantages and Two Disadvantages of the Organizational structure Identified in (a) above which are not discussed in the above case. (6)
34. Traditional trade of Kirana stores constitute 90% of FMCG (Fast moving consumers good) business in India.HUL is the market leader of in FMCG with over 60 lakh Outlets According to industry estimates, Patanjali Products are currently available in two Lakh retail outlets ' Availability of the product is the single largest driver of FMCG sales. A shopper research suggest that 30% - 40% consumer shift preference if their favourite brand is not available at the store in the context of the above case
- (a) Identify the component of marketing mix being discussed in the above lines Explain
- (b) State the two main decisions related to the concept identified in part (a)
- (c) Name the type of Channel of Distribution adopted by HUL. (6)
-





# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII

Time - 3 Hours

Subject - Chemistry

Maximum Marks-70

**General Instructions: Read the following instructions carefully and follow them:**

- (i) This Question Paper contains 33 questions. All questions are compulsory.
- (ii) Question paper is divided into FIVE sections – Section A, B, C, D and E.
- (iii) Section A – question number 01 to 16, are multiple choice type questions. Each question carries 01 mark.
- (iv) Section B – question number 17 to 21, is very short answer type questions. Each question carries 02 marks.
- (v) Section C – question number 22 to 28, is short answer type questions. Each question carries 03 marks.
- (vi) Section D – question number 29 and 30, are case-based questions. Each question carries 04 marks.
- (vii) Section E – question number 31 to 33, is long answer type questions. Each question carries 05 marks.
- (viii) There is no overall choice given in the question paper. However, an internal choice has been provided in few questions in all the sections except Section – A.
- (ix) Use of calculator is NOT allowed.

### SECTION - A

1. The relative lowering of vapour pressure of an aqueous solution containing nonvolatile solute is 0.0125. The molality of the solution is
  - A. 0.70
  - B. 0.50
  - C. 0.60
  - D. 0.80
2. Arrange the given set of compounds in order of increasing boiling points
  - (I) 1 – Chloro propane    (II) Isopropyl chloride    (III) 1 – Chlorobutane
  - A. II < III < I
  - B. I < II < III
  - C. II < I < III
  - D. III < I < II
3. Out of  $\text{Fe}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Cr}^{3+}$ ,  $\text{Ni}^{2+}$ , the one which show highest magnetic moment is
  - A.  $\text{Fe}^{2+}$
  - B.  $\text{Co}^{2+}$
  - C.  $\text{Cr}^{3+}$
  - D.  $\text{Ni}^{2+}$

4. If the rate constant for a first order reaction is  $k$ , the time ( $t$ ) required for the completion 99% of the reactions is given by
- $t = 2.303/k$
  - $t = 0.693/k$
  - $t = 6.909/k$
  - $t = 4.606/k$
5. For the cell reaction
- $$2\text{Fe}^{3+}(\text{aq}) + 2\text{I}^{-}(\text{aq}) \longrightarrow 2\text{Fe}^{2+}(\text{aq}) + \text{I}_2(\text{aq})$$
- $E^{\circ}_{\text{cell}} = 0.24 \text{ V}$  at 298K. The standard Gibbs Energy of the all reaction is
- 23.16 kJ/mol
  - 46.32 kJ /mol
  - 23.16 kJ /mol
  - 46.32 kJ /mol
6. Heating of phenylmethyl ether with HI produces
- Iodobenzene + Iodoethane
  - Phenol + Methyl iodide
  - Benzene + Methyl iodide
  - Ethylchloride + Benzene
7. The quantity of charge required to obtain one mole of aluminium from  $\text{Al}_2\text{O}_3$  is
- 1 F
  - 6 F
  - 3 F
  - 2 F
8. The average osmotic pressure of human blood is 7.8 bar at  $37^{\circ}\text{C}$ . What is the concentration of an aqueous NaCl solution that could be used in the blood stream?
- 0.15 mol/L
  - 0.30 mol/L
  - 0.60 mol/L
  - 0.45 mol/L
9. Two reactions  $\text{R}_1$  and  $\text{R}_2$  have identical pre exponential factors. Activation energy of  $\text{R}_1$  exceeds that of  $\text{R}_2$  by 10 KJ/mol. If  $k_1$  and  $k_2$  are the rate constant for reactions  $\text{R}_1$  and  $\text{R}_2$  respectively at 300 K, then  $\ln(k_2/k_1)$  is equal to
- 6
  - 4
  - 8
  - 12
10. What is the correct electronic configuration of the central atom in  $\text{K}_4[\text{Fe}(\text{CN})_6]$  based on crystal field theory
- $e_g^4 t_{2g}^2$
  - $t_{2g}^4 e_g^2$
  - $t_{2g}^6 e_g^0$
  - $e_g^3 t_{2g}^3$

11. The organic chloro compound, which shows complete stereochemical inversion during a  $S_N2$  reaction, is
- $CH_3Cl$
  - $(C_2H_5)_2CHCl$
  - $(CH_3)_3CCl$
  - $(CH_3)_2CHCl$
12. The compound 'A' on treatment with Na gives B, and with  $PCl_5$  gives C. B and C react together to give diethylether. A, B and C are in the order
- $C_2H_5OH$ ,  $C_2H_6$ ,  $C_2H_5Cl$
  - $C_2H_5OH$ ,  $C_2H_5Cl$ ,  $C_2H_5ONa$
  - $C_2H_5Cl$ ,  $C_2H_6$ ,  $C_2H_5OH$
  - $C_2H_5OH$ ,  $C_2H_5ONa$ ,  $C_2H_5Cl$

**Direction:** For questions number 13 to 16, two statements are given, One labelled as Assertion (A) & other labelled as Reason (R). Select the correct answer to these questions from the codes (A), (B), (C) and (D), as given below :

- Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
- Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
- Assertion (A) is true, but Reason (R) is false.
- Assertion (A) and Reason (R) both are false.

13. **Assertion:** Rate constant increases with increase in temperature.

**Reason:** Increasing the temperature of the substance increase the fraction of molecules, which collide with energies greater than activation energy.

14. **Assertion:** Addition of a non volatile solute to a volatile solvent increases the boiling point

**Reason:** Addition of a non volatile solute results in lowering of vapour pressure.

15. **Assertion:** A solution of sucrose in water is dextrorotatory but on hydrolysis in presence of little hydrochloric acid, it becomes laevo -rotatory

**Reason:** Sucrose on hydrolysis gives unequal amounts of glucose and fructose as a result of which changing sign of rotation observed.

16. **Assertion:** In monohaloarenes, further electrophilic substitution occurs at ortho & para position

**Reason:** Halogen atom is a ring deactivator.

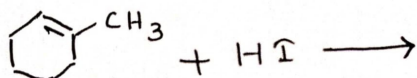
### SECTION - B

17. (A) On mixing liquid X and liquid Y, the volume of resulting solutions increases. What type of deviation from Raoult's law is shown by the resulting solution? What change in temperature would you observe after mixing liquids X and Y?
- (B) How can the direction of osmosis be reversed?

18. (A) Rusting of iron is quicker in saline water than in ordinary water - give reason for that.  
 (B) Write one merit and one demerit of using nickel cadmium cell over lead storage cell.
19. (A) Alkyl halides are immiscible in water. Give reason for this.  
 (B) How to distinguish between Chlorobenzene and Benzyl chloride by a chemical test?

OR

- (A) Why is methyl chloride hydrolysed more easily than chlorobenzene?  
 (B) Complete the following reaction :



20. (A) Suggest a possible mechanism for the following reaction.



- (B) Write the IUPAC name of  $(\text{CH}_3)_3\text{CCH}_2\text{Br}$ .

21. Write any two differences between maximum boiling azeotrope and minimum boiling azeotrope.

### SECTION - C

22. Calculate the freezing point of an aqueous solution containing 10.50g of  $\text{MgBr}_2$  in 200 g of water.

$$\text{Molar Mass of Mg Br}_2 = 184\text{g/mol}$$

$$K_f \text{ for water} = 1.86 \text{ K kg/mol}$$

23. A strip of nickel metal is placed in a 1 molar solution of  $\text{Ni}(\text{NO}_3)_2$  and a strip of silver metal is placed in a 1 molar solution of  $\text{AgNO}_3$ . An electrochemical cell is created when the two solutions are connected by a salt bridge and the two strips are connected by wires to a voltmeter. Calculate the cell potential at  $25^\circ\text{C}$  for the cell if the initial concentration of  $\text{Ni}(\text{NO}_3)_2$  is 0.100 molar and the initial concentration of  $\text{AgNO}_3$  is 1.00 molar.

$$[E^\circ \text{Ni}^{2+}/\text{Ni}] = -0.25 \text{ V}$$

$$E^\circ \text{Ag}^+/\text{Ag} = 0.80 \text{ V}]$$

24. (A) What type of isomerism is shown by  $[\text{Co}(\text{NH}_3)_5\text{ONO}] \text{Cl}_2$ ?  
 (B) On the basis of Valence Bond Theory explain the hybridisation and shape of  $[\text{Co}(\text{NH}_3)_6]^{3+}$
25. (A) Write the product formed on reaction of D - glucose with  $\text{Br}_2$  water (provide chemical reaction)  
 (B) Name two components of  $\alpha$  - glucose which constitute starch.  
 (C) What is the difference between native protein and denatured protein?

26. The rate constant of a first order reaction increases from  $2 \times 10^{-2}$  to  $8 \times 10^{-2}$  when the temperature changes from 300 K to 320 K. Calculate the energy of activation [ $\log 2 = 0.301$ ]
27. What happens when (Write chemical reactions)
- (A)  $(\text{CH}_3)_3\text{C} - \text{OH}$  is treated with Cu at 573 K.
  - (B) Phenol reacts with bromine water.
  - (C) Ethyl chloride is treated with  $\text{NaOCH}_3$ .
28. Give reason for the following :
- (A) Ethyl iodide undergoes  $\text{S}_{\text{N}}2$  reaction faster than ethyl bromide.
  - (B) Grignard's reagent should be prepared under anhydrous conditions.
  - (C) Dipole moment in chlorobenzene is lower than that of cyclohexyl chloride.

**OR**

How do you convert

- (A) Propene to 1-Iodo propane
- (B) Chlorobenzene to 2-chloroacetophenone
- (C) Aniline to Bromo benzene

### SECTION - D

29. Read the given passage and answer the following question.

Biomolecules are complex molecules that build up living organisms and are required for their growth, maintenance and ability to reproduce. Carbohydrates are polyhydroxy aldehydes and Ketones which are major sources of energy. Monosaccharides are simple sugars that cannot be hydrolysed. Proteins are complex nitrogenous polymers of amino acids connected through peptide bonds. Hormones perform specific functions and are secreted by endocrine glands. Vitamins are essential for healthy body. Nucleic acids are polymers of nucleotides. RNA helps in protein synthesis, DNA transfers genetic characteristics. [1+1+2=4]

- (A) Name a disaccharide which on hydrolysis give glucose and galactose.
- (B) Name one non reducing sugar
- (C) (i) Which one is the complementary base of cytosine in one strand of DNA to that in another strand of DNA?
- (ii) Which linkage by which nucleotides are joined together 5' and 3' atoms of Pentose sugar?

**OR**

- (C) Write the structural difference between nucleoside and nucleotide. Write the type of protein in albumin

30. The half life of a reaction is the time required for the concentration of reactant to decrease by half i.e  $[A]_t = \frac{1}{2} [A]$

For first order reaction,  $t_{1/2}$  is independent of initial concentration.

It may be noted that though the major portion of the first order kinetic may be over in a finite time but the reaction will never cease as the concentration of reactant will be zero only at infinite time. [1+1+2=4]

- (A) The rate constant for a first order reaction is  $7 \times 10^{-4} \text{ s}^{-1}$ ? If the initial concentration of reactant is 0.080 M, what is the half life of the reaction?
- (B) Write the effect of adding catalyst on (i) Gibbs energy of reaction (ii) Activation energy.
- (C) Mention any four factors which affect the rate of chemical reaction.

**OR**

- (C) With the help of diagram explain the role of activated complex in a reaction.

### SECTION - E

31. (A) State Kohlrausch law of independent migration of ion. Write its one application. [2]

- (B) Conductivity of  $2.5 \times 10^{-4} \text{ M}$  methanoic acid is  $5.25 \times 10^{-5} \text{ S cm}^{-1}$ . Calculate its molar conductivity and degree of dissociation. [3]

[Given  $\lambda^0(\text{H}^+) = 349.5 \text{ S cm}^2 \text{ mol}^{-1}$

$\lambda^0(\text{HCOO}^-) = 50.5 \text{ S cm}^2 \text{ mol}^{-1}$ ]

**OR**

- (A) What type of battery is the lead storage battery? Write the anode and cathode reactions and the overall reactions occurring in a lead storage battery when current is drawn from it.

- (B) Calculate the time to deposit 1.17 g of Ni at cathode when a current of 5 A was passed through the solution of Ni  $(\text{NO}_3)_2$ . [Molar mass of Ni = 58.5 g/mol]

- (C) Predict the product of electrolysis of an aqueous solution of  $\text{H}_2\text{SO}_4$  using Pt electrode.

[2+2+1=5]

32. Write any five for the following:

[1×5=5]

**Give reasons:**

(A) A solution of  $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$  is green while a solution of  $[\text{Ni}(\text{CN})_4]^{2-}$  is colourless.

(B) CO forms more stable complex with metal than  $\text{NH}_3$ .

(C)  $[\text{Ni}(\text{Cl})_4]^{2-}$  is paramagnetic but  $[\text{Ni}(\text{CO})_4]$  is diamagnetic.

(D)  $\text{Co}^{2+}$  is easily oxidized to  $\text{Co}^{3+}$  in presence of a strong ligand.

(E) The  $\Pi$  complexes are known for transition elements only.

(F) Nickel (II) does not form low spin octahedral complexes.

(G)  $[\text{Co}(\text{en})_3]^{3+}$  is more stable complex in compared to  $[\text{Co}(\text{NH}_3)_6]^{3+}$ .

33. (A) Write chemical reactions involved in the following .

[2]

(i) Reimer Tiemann reaction .

(ii) Williamson's synthesis .

(B) Write the mechanism for hydration of ethene to ethanol.

[2]

(C) Rearrange the following compound in the increasing order of their boiling points:

[1]

$\text{CH}_3 - \text{CHO}$ ,  $\text{CH}_3 - \text{CH}_2 - \text{OH}$ ,  $\text{CH}_3 - \text{CH}_2\text{CH}_3$

**OR**

(A) Give a chemical test to distinguish between ethanol and phenol.

(B) Convert the following:

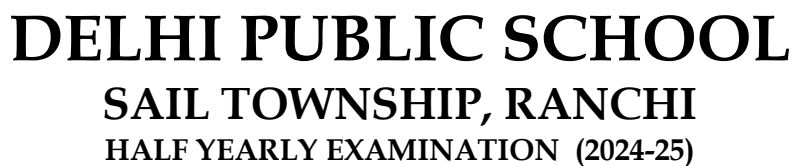
Acetone to 2 - Methyl propan -2 - ol

(C) Write the mechanism for ethanol converted to ethene when treated with cone  $\text{H}_2\text{SO}_4$ .

(D) Arrange the following in the increasing order of acidic strength.

p - nitrophenol, ethanol, phenol

[1+1+2+1=5]



**Subject – Computer Science**  
**Maximum Marks- 70**

- Please check this question paper contains 35 questions.
- The paper is divided into 4 Sections- A, B, C, D and E.
- Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
- Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.

1





20.	<p>What will the following code fragments produce?</p> <p>a)</p> <pre>L=['im','ur'] L1=range(len(L)) for i in L1:     L[i]=L[i].upper() print(L)</pre>	<p>b)</p> <pre>T=('im','ur') T1=range(len(T)) for i in T1:     T[i]=T[i].upper() print(T)</pre>	2
21.	<p>Find and write the output of the following Python Code:</p> <pre>a=10 def call():     global a     a=15     b=20     print(a) call()</pre>		2
22.	Write any two advantages of using a text file over the binary file.		2
23.	How are CSV file different from a regular text file.		2
24.	Differentiate between “DROP” command and “DROP” Clause?		2
25.	What do you mean by Foreign key? Explain with suitable example.		2
	<b><u>SECTION C(CARRIES 3 MARKS EACH)</u></b>		
26.	<p>Write a code in Python to display the elements of list thrice if it is a number and display the element terminated with # if it is not a number. For example, if the content of the list (List1) is as follows: List1=['41','DROND','GIRIRAJ','13','ZARA'] The output should be:</p> <pre>414141 DROND# GIRIRAJ# 131313 ZARA#</pre>		3
27.	<p>Find and write the output of the following python code:</p> <pre>from math import * def fun1():     pi=30     print(pi) def fun():     pi=20     print(pi)     fun1() fun() print(pi)</pre>		3

28.	Find the output: <pre>def fun(s):     k=len(s)     m=""     for i in range(0,k):         if (s[i].isupper()):             m=m+s[i].lower()         elif s[i].isalpha():             m=m+s[i].upper()         else:             m=m+'bb'     print(m) fun('school12@com')</pre>	3
29.	Find the output: <pre>import pickle names=['First','Second','Third','Fourth','Fifth'] lst=[] for i in range(-1,-5,-1):     lst.append(names[i]) with open ('test.dat','wb') as fout:     pickle.dump(lst,fout) with open('test.dat','rb') as fin:     n=pickle.load(fin) print(n)</pre>	3
30.	Explain the following terms with suitable example. a) Primary Key      b) Candidate Key      c) Alternate Key	3
	<b><u>SECTION D (CARRIES 4 MARKS EACH)</u></b>	
31.	a) Write a python program that prints the longest word in a list of words. b) Write a python program that reads a date as an integer in the format MMDDYYYY. The program will call a function that print out the date in the format: <Month name><day>, <year> Sample run: Enter date: 12252020 December 25, 2020	2+2
32.	A binary file "Book.dat" has structure [BookNo, Book_Name, Author, Price]. (a) Write a user defined function CreateFile() to input data for a record and add to Book.dat. (b) Write a function CountRec(Author) in Python which accepts the Author name as parameter and count and return number of books by the given Author which are stored in the binary file "book.dat".	2+2
	<b><u>Section E(CARRIES 5 MARKS EACH)</u></b>	
33.	Write a function random_fact(a,b) that takes two arguments 'a' and 'b', It should generate two unique random numbers in the range from 'a' to 'b' and find the sum of all the common factors of those two generated random numbers.	5

34.	<p>Write a program that intends to print from a csv file(people.csv) that stores data as given below:</p> <table><tr><td>Empid</td><td>Fname</td><td>Lname</td><td>Phone</td></tr><tr><td>201</td><td>Vibhu</td><td>Jain</td><td>295000</td></tr><tr><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>-</td><td>-</td><td>-</td><td>-</td></tr></table> <p>The incomplete code is given below:</p> <pre>import csv #Line 1 with open(_____, _____) as myfile: #Line 2     fin=csv._____(myfile) #Line 3     for row in _____: #Line 4         print(_____)#Line 5</pre> <p>a) Complete the <b>Line2</b> of the given code so that given csv file is opened in read mode for processing.</p> <p>b) Complete <b>Line3</b> so that the comma separated file is read into fin object.</p> <p>c) Complete the code of <b>Lines 4 and 5</b> so that the records from the open csv file are printed line by line.</p> <p>d) Modify the code of <b>Lines 4 and 5</b> so that only the fourth field (Phone) from each record gets printed.</p> <p>e) Write the output obtained by running the code of <b>Lines 4 and 5. (on the basis of (c) and (d))</b></p>	Empid	Fname	Lname	Phone	201	Vibhu	Jain	295000	-	-	-	-	-	-	-	-	-	-	-	-	5
Empid	Fname	Lname	Phone																			
201	Vibhu	Jain	295000																			
-	-	-	-																			
-	-	-	-																			
-	-	-	-																			
35.	<p>Write SQL Query for the following activity:-</p> <p>a) Create a Database Named as “DPS” and get inside the created database.</p> <p>b) Create a table “students” with the following specifications:</p> <table><tr><td>FieldName</td><td>DataType(Limit)</td><td>Constraints</td></tr><tr><td>ADMNO</td><td>INT</td><td>PRIMARY KEY</td></tr><tr><td>NAME</td><td>VARCHAR(25)</td><td></td></tr><tr><td>DOB</td><td>DATE</td><td></td></tr></table> <p>c) Modify the table to add a constraint “NOT NULL” to the field “NAME”.</p> <p>d) Add a new field “MOBNO” to store the mobile numbers of the students.</p> <p>e) Delete a field DOB.</p>	FieldName	DataType(Limit)	Constraints	ADMNO	INT	PRIMARY KEY	NAME	VARCHAR(25)		DOB	DATE		5								
FieldName	DataType(Limit)	Constraints																				
ADMNO	INT	PRIMARY KEY																				
NAME	VARCHAR(25)																					
DOB	DATE																					



# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION(2024-25)

Class - XII  
Time - 3 hours

Subject - Core Mathematics  
Maximum Marks- 80

### General Instructions:

1. This Question paper contains - **five sections A, B, C, D and E**. Each section is compulsory. However, there are internal choices in some questions.
2. **Section A** has **18 MCQ's** and **02 Assertion-Reason based questions of 1 mark each**.
3. **Section B** has **5 Very Short Answer (VSA)-type questions of 2 marks each**.
4. **Section C** has **6 Short Answer (SA)-type questions of 3 marks each**.
5. **Section D** has **4 Long Answer (LA)-type questions of 5 marks each**.
6. **Section E** has 3 source based/case based/passage based/integrated units of assessment (4 marks each) with sub parts.

### SECTION A (1 mark each) (Multiple choice Questions)

1. If  $R = \{(x, y) : x, y \in \mathbb{Z}, x^2 + y^2 \leq 4\}$  is a relation in set  $\mathbb{Z}$ , then domain of  $R$  is  
(a)  $\{0,1,2\}$  (b)  $\{-2,-1,0,1,2\}$  (c)  $\{0,-1,-2\}$  (d)  $\{-1,0,1\}$
2. A function  $f: \mathbb{R} \rightarrow \mathbb{R}$  defined by  $f(x) = 2 + x^2$ . Which one is the best suitable option?  
(a) not one-one (b) one-one (c) not onto (d) neither one-one nor onto.
3.  $\tan^{-1}\left\{\sin\left(-\frac{\pi}{2}\right)\right\}$  is equal to  
(a)  $-1$  (b)  $1$  (c)  $\frac{\pi}{2}$  (d)  $-\frac{\pi}{4}$
4. What is the domain of the function  $\cos^{-1}(2x - 3)$ ?  
(a)  $[-1,1]$  (b)  $(1,2)$  (c)  $(-1,1)$  (d)  $[1,2]$
5. If for a square matrix  $A$ ,  $A^2 - A + I = 0$ , then  $A^{-1}$  equals  
(a)  $A$  (b)  $A + I$  (c)  $I - A$  (d)  $A - I$
6. If a matrix  $A$  is both symmetric and skew symmetric, then  $A$  is necessarily a  
(a) diagonal matrix (b) zero square matrix (c) square matrix (d) identity matrix
7. If  $A$  is a square matrix of order 3, such that  $A(\text{adj } A) = 10I$ , then  $|\text{adj } A|$  is equal to  
(a) 1 (b) 10 (c) 100 (d) 101
8. If for the matrix  $A = \begin{bmatrix} \alpha & -2 \\ -2 & \alpha \end{bmatrix}$ ,  $|A^3| = 125$ , then the value of  $\alpha$  is  
(a)  $\pm 3$  (b)  $-3$  (c)  $\pm 1$  (d) 1
9. The function  $f(x) = x|x|$ ,  $x \in \mathbb{R}$  is differentiable  
(a) Only at  $x = 0$  (b) Only at  $x = 1$  (c) in  $\mathbb{R}$  (d) none of these.

10. Derivative of  $\sin x$  with respect to  $\log x$  is  
 (a)  $\cos x$  (b)  $x \cos x$  (c)  $\frac{\cos x}{\log x}$  (d)  $\frac{1}{x} \cos x$
11. For the curve  $\sqrt{x} + \sqrt{y} = 1$ ,  $\frac{dy}{dx}$  at  $(\frac{1}{4}, \frac{1}{4})$  is  
 (a)  $-1$  (b)  $1$  (c)  $2$  (d)  $1/2$
12. The function  $f(x) = x - \frac{1}{x}$ ,  $x \neq 0, x \in R$  is  
 (a) increasing for all  $x \in R$ . (b) increasing for domain of the function.  
 (c) increasing for  $(0, \infty)$  (d) neither increasing nor decreasing.
13. If  $\vec{a}$ ,  $\vec{b}$  and  $(\vec{a} + \vec{b})$  are all unit vectors and  $\theta$  is the angle between  $\vec{a}$  and  $\vec{b}$ , then the value of  $\theta$  is,  
 (a)  $\frac{2\pi}{3}$  (b)  $\frac{5\pi}{6}$  (c)  $\frac{\pi}{3}$  (d)  $\frac{\pi}{6}$
14. ABCD is a rhombus whose diagonals intersect at E. Then  $\vec{EA} + \vec{EB} + \vec{EC} + \vec{ED}$  equals  
 (a)  $\vec{0}$  (b)  $\vec{AD}$  (c)  $2\vec{BC}$  (d)  $2\vec{AD}$
15. The angle between the lines  $2x = 3y = -z$  and  $6x = -y = -4z$  is  
 (a)  $0^\circ$  (b)  $30^\circ$  (c)  $45^\circ$  (d)  $90^\circ$
16. The direction ratios of the line  $\frac{x+2}{2} = \frac{2y-5}{-3}$ ,  $z = 2$  are  
 (a)  $2, -3, 0$  (b)  $2, -3, 1$  (c)  $4, -3, 2$  (d)  $4, -3, 0$
17. Five fair coins are tossed simultaneously. The probability of the events that at least one head comes up is  
 (a)  $\frac{27}{32}$  (b)  $\frac{5}{32}$  (c)  $\frac{31}{32}$  (d)  $\frac{1}{32}$
18. A card is picked at random from a pack of 52 playing cards. Given that the picked card is queen, the probability of this card to be a card of spade is  
 (a)  $\frac{1}{3}$  (b)  $\frac{4}{13}$  (c)  $\frac{1}{4}$  (d)  $\frac{1}{2}$

### ASSERTION-REASON BASED QUESTIONS

In the following questions, a statement of assertion (A) is followed by a statement of Reason(R). Choose the correct answer out of the following choices.

- 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.

19. **Assertion (A):** The rate of change of volume of a sphere of diameter  $r$ , with respect to  $r$  is  $4\pi r^2$ .

**Reason (R):** Rate of change of  $y$  with respect to  $x$  is  $\frac{dy}{dx}$ .

20. **Assertion (A):** Maximum value of  $Z=11x + 7y$  subject to constraints  $2x + y \leq 6$ ,  $x \leq 2$ ,  $x \geq 0$ ,  $y \geq 0$  will be obtained at  $(0,6)$ .

**Reason (R):** In a bounded feasible region, there always exist a maximum and minimum value.

## SECTION B

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

21. Find the value of  $\tan^{-1} \left[ 2 \sin \left( 2 \cos^{-1} \frac{\sqrt{3}}{2} \right) \right]$
22. If A and B are symmetric matrices, show that  $AB + BA$  is symmetric and  $AB - BA$  is skew symmetric.
23. Show that  $f(x) = 2x + \cot^{-1} x + \log(\sqrt{1+x^2} - x)$  is increasing in R.
24. The radius r of a right circular cylinder is decreasing at the rate of 3cm/min, and its height h is increasing at the rate of 2 cm/min. When  $r = 7$ cm and  $h = 2$ cm, find the rate of change of the volume of cylinder. [Use  $\pi = \frac{22}{7}$ ]

OR

The area of an expanding rectangle is increasing at the rate of  $48 \text{ cm}^2/\text{s}$ . The length of the rectangle is always equal to square of its breadth. At what rate, the length is increasing at the instant when breadth is 4.5cm?

25. Evaluate  $\int \frac{dx}{1+e^x}$

OR

Evaluate  $\int \frac{dx}{x \cos^2(1+\log x)}$

## SECTION C

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

26. If  $A = \begin{bmatrix} 0 & -\tan \frac{\alpha}{2} \\ \tan \frac{\alpha}{2} & 0 \end{bmatrix}$  and I is the identity matrix of order 2, show that  $I + A = (I - A) \begin{bmatrix} \cos \alpha & -\sin \alpha \\ \sin \alpha & \cos \alpha \end{bmatrix}$

OR

- If  $A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$ , find  $A^2 - 5A + 4I$  and hence find a matrix X such that  $A^2 - 5A + 4I + X = 0$ .

27. If  $f(x) = \begin{cases} \frac{1-\cos 4x}{x^2}, & \text{when } x < 0 \\ a, & \text{when } x = 0 \\ \frac{\sqrt{x}}{\sqrt{16+\sqrt{x}}-4}, & \text{when } x > 0 \end{cases}$  is continuous at  $x = 0$ , find the value of a.

28. If  $y = [\log(x + \sqrt{x^2 + 1})]^2$ , show that  $(1 + x^2) \frac{d^2y}{dx^2} + x \frac{dy}{dx} - 2y = 0$ .

OR

If  $x = \sin t$  and  $y = \sin pt$ , prove that  $(1 - x^2) \frac{d^2y}{dx^2} - x \frac{dy}{dx} + p^2y = 0$ .

29. Differentiate  $x^{x \cos x} + \frac{x^2+1}{x^2-1}$  with respect to x.

30. Evaluate  $\int \frac{1+\tan x}{1-\tan x} dx$

31. 3 defective bulbs are mixed with 7 good ones. Find the probability distribution of the number of defective bulbs, if 3 bulbs are drawn at random. What is the average number of defective bulbs drawn?

### SECTION D

**This section comprises of long answer-type questions of 5 marks each**

32. Let  $Z$  be the set of all integers and  $R$  be the relation on  $Z$  defined as  $R = \{(a, b) : a, b \in Z \text{ and } (a - b) \text{ is divisible by } 5\}$ . Prove that  $R$  is an equivalence relation. Find the equivalence class of  $[3]$ .

**OR**

Show that  $f : \mathbb{N} \rightarrow \mathbb{N}$  given by  $f(x) = \begin{cases} x + 1, & \text{if } x \text{ is odd} \\ x - 1, & \text{if } x \text{ is even} \end{cases}$  is bijective.

33. Find the area of the greatest rectangle that can be inscribed in an ellipse  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ .

**OR**

A window is in the form of a rectangle surmounted by a semicircular opening. The total perimeter of the window is 10 m. Find the dimensions of the window to admit maximum light through the whole opening.

34. Find the coordinate of the foot of perpendicular drawn from a point  $A(1, 8, 4)$  to the line joining the points  $B(0, -1, 3)$  and  $C(2, -3, -1)$ .

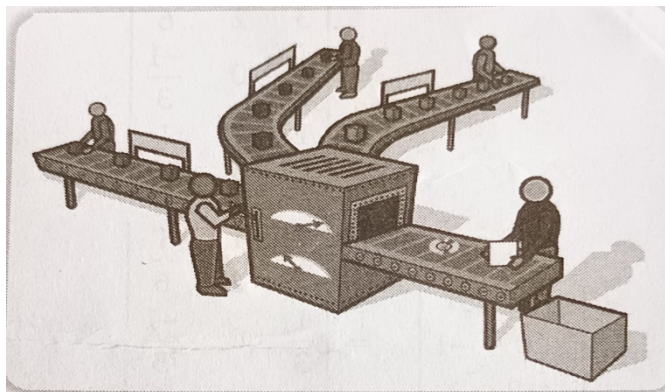
Also find the shortest distance between the line joining the points  $B(0, -1, 3)$  and  $C(2, -3, -1)$  and the line passing through the point  $A(1, 8, 4)$  in the direction of  $\hat{i} + \hat{j} + \hat{k}$

35. Solve the following Linear Programming problem graphically:

$$\text{Minimise: } Z = 6x + 3y \text{ subject to the constraints: } \begin{cases} 4x + y \geq 80 \\ x + 5y \geq 115 \\ 3x + 2y \leq 150 \\ x \geq 0, y \geq 0 \end{cases}$$

### SECTION E

36. A factory produces three products every day. Their production on a particular day is 45 tons. It is found that production of third product exceeds the production of first product by 8 tons while the total production of first and third product is twice the production of second product.

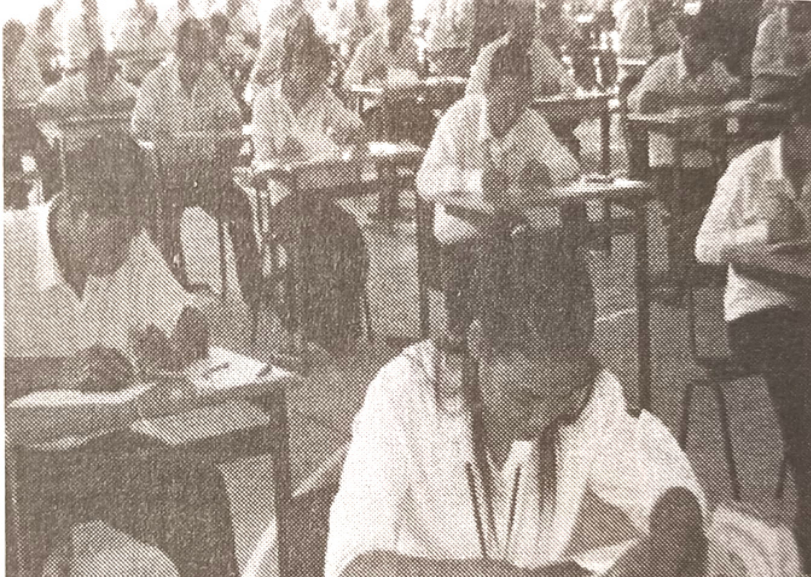




i. If  $x$ ,  $y$  and  $z$  respectively denotes the quantity (in tons) of first, second and third product produced, then construct the system of equations and write it in matrix form. [2]

ii. If  $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & -2 \\ 1 & -1 & 1 \end{bmatrix}^{-1} = \frac{1}{6} \begin{bmatrix} 2 & 2 & 2 \\ 3 & 0 & -3 \\ 1 & -2 & 1 \end{bmatrix}$ , then find  $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & -1 \\ 1 & -2 & 1 \end{bmatrix}^{-1}$  [2]

37. A class XII student appearing for a competitive examination was asked to attempt the following questions. Let  $\vec{a}$ ,  $\vec{b}$  and  $\vec{c}$  be 3 nonzero vectors.



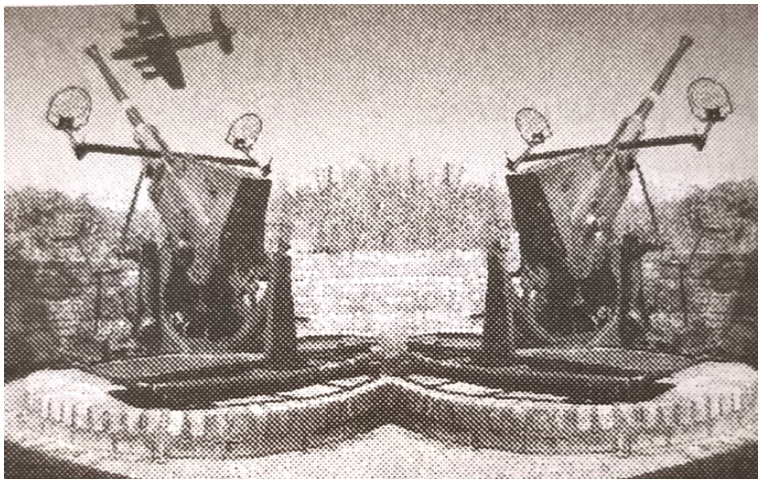
i. If  $\vec{a}$  and  $\vec{b}$  are such that  $|\vec{a} + \vec{b}| = |\vec{a} - \vec{b}|$  then find the relation between  $\vec{a}$  and  $\vec{b}$ . [1]

ii. Let  $\vec{a}$ ,  $\vec{b}$  and  $\vec{c}$  be unit vectors such that  $\vec{a} \cdot \vec{b} = \vec{a} \cdot \vec{c} = 0$  and angle between  $\vec{b}$  and  $\vec{c}$  is  $\frac{\pi}{6}$  then  $\vec{a} =$

(a)  $2(\vec{b} \times \vec{c})$  (b)  $-2(\vec{b} \times \vec{c})$  (c)  $\pm 2(\vec{b} \times \vec{c})$  (d)  $2(\vec{b} \pm \vec{c})$  [1]

iii. If  $\vec{a} = \hat{i} - 2\hat{j}$ ,  $\vec{b} = 2\hat{i} + \hat{j} + 3\hat{k}$  then find the value of  $(2\vec{a} + \vec{b}) \cdot [(\vec{a} + \vec{b}) \times (\vec{a} - 2\vec{b})]$ . [2]

38. There are two anti-aircraft guns, named as A and B. The probabilities that the shell fired from them hits an aeroplane are 0.3 and 0.2 respectively. Both of them fired one shell at an aeroplane at the same time.



i. What is the probability that the shell fired from exactly one of them hit the plane? [2]

ii. If it is known that the shell fired from exactly one of them hit the plane, then what is the probability that it was fired from B? [2]





# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 3 Hours

Subject - Economics  
Maximum Marks - 80

### General Instructions

- i. This Question Paper contains two parts:
  - **Part A – Macro Economics (40 marks)**
  - **Part B – Indian Economic Development (40 marks)**
- ii. Question No. 1 – 10 and 18-27 are very short answer questions carrying 1 mark each. They are required to be answered in one word or one sentence each.
- iii. Question No. 11-12 and 28-29 are short answer questions carrying 3 marks each. Answers to them should not normally exceed 60 - 80 words each.
- iv. Question No. 13-15 and 30-32 are short answer questions carrying 4 marks each. Answers to them should not normally exceed 80 - 100 words each.
- v. Question No. 16-17 and 33-34 are long answer questions carrying 6 marks each. Answers to them should not normally exceed 100-150 words each.

### PART A- MACROECONOMICS

1. Read the following statements: Assertion (A) and Reason(R). Choose one of the correct alternatives given below.

**Assertion (A):** In the income phase, factor incomes flow from firms to households.

**Reason(R):** Firms distribute the revenue received from the sale of goods and services as rent, interest, profit and wages.

*Alternatives:*

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

2. Which of the following statements is/ are correct?

- (i) GDP may be a good indicator of economic growth but not economic welfare.
- (ii) GDP can never be equal to NDP.

*Alternatives:*

- (a) Only (i)
- (b) Only (ii)
- (c) Both (i) and (ii)
- (d) None of these

3. Complete the table:

Producer	Value of Output (VO)	Intermediate Consumption (IC)	Value Added (VA= VO-IC)
Farmer	2,000	-	2,000
Baker	....(i)....	2,000	2,000
Retail Seller	4,400	....(iii)....	400
<b>Total</b>	....(ii)....	6,000	....(iv)....

*Alternatives:*

- (a) 4,000; 10,400; 4,000; 4,000
- (b) 4,000; 10,400; 4,000, 4,400
- (c) 2,000; 6,000; 6,000; 4,400
- (d) 4,000; 10,400; 6,000; 4,000

4. \_\_\_\_\_ is the change in stock of finished goods, semi-finished goods and raw materials.

- (a) Net Investment
- (b) Inventory Investment
- (c) Gross Investment
- (d) None of these

5. Ms. Iqra Ansari, a teacher, was explaining in her class about various types of deposits with the commercial banks. She quoted that: *"These deposits form a part of M1 measure of money supply and are payable on demand by the commercial banks."* Identify the type of deposits she was explaining about and choose the correct alternative:

- (i) Demand Deposits
- (ii) Time Deposits
- (iii) Post Office Deposits

*Alternatives:*

- (a) Only (i)
- (b) Only (ii)
- (c) (i) and (ii)
- (d) (i), (ii) and (iii)

6. Read the following statements carefully.

**Statement 1:** Commercial banks are able to lend money which is a number of times more than their cash reserves.

**Statement 2:** Demand deposits and primary deposits are one and the same thing.

In the light of the given statements, choose the correct alternative from the following:

- (a) Statement 1 is true and statement 2 is false
- (b) Statement 1 is false and statement 2 is true
- (c) Both statements 1 and 2 are true
- (d) Both statements 1 and 2 are false

7. According to the theory of Keynesian Economics, the value of Average Propensity to Consume can never be \_\_\_\_\_.  
(a) positive  
(b) zero  
(c) more than one  
(d) less than one

8. In case of an underemployment equilibrium, which of the following is not true?  
(a) Aggregate demand is equal to aggregate supply  
(b) There exists excess production capacity in the economy  
(c) Resources are not fully and efficiently utilized  
(d) Resources are fully and efficiently utilized

**OR**

The national income of Rs. 90 crore and consumption expenditure of Rs. 81 crore rises to Rs. 100 crore and to Rs. 88 crore respectively, what will be the marginal propensity to save?

- (a) 0.7  
(b) 0.3  
(c) 0.9  
(d) 0.81
9. Inflationary gap:  
(a) raises the level of employment  
(b) raises the level of output  
(c) both (a) and (b)  
(d) raises the general price level
10. Which of the following statements is true?  
(a) Loans from the IMF are a revenue receipt.  
(b) Higher revenue deficit necessarily leads to higher fiscal deficit.  
(c) Borrowing by a government represents a situation of fiscal deficit.  
(d) Revenue deficit is the excess of capital receipts over the revenue receipts.
11. If all the customers of a commercial bank demand for the deposits at a time, then how will the Central Bank help commercial banks in this situation? Identify and discuss the relevant function of the central bank.
12. What is deflationary gap? Explain with a diagram. Also, mention a fiscal tool to solve the problem of deflation.

**OR**

If in an economy, saving function is given by  $S = (-)50 + 0.2Y$  and  $Y = \text{Rs.}2,000$  crores; consumption expenditure for the economy would be Rs.1,650 crores and the autonomous investment is Rs.50 crores and the marginal propensity to consume is 0.8. True or false? Justify your answer with proper calculations.

13. Suppose output produced during the year 2021 and 2023 were 500 and 650 units respectively. If the market price of the output produced was Rs.150 and Rs.200 per unit, then calculate the percentage change in Real GDP and Nominal GDP, taking 2021 as the base year.
14. Explain the 'Saving-Investment Approach' of equilibrium determination. savings exceeds planned investment in an economy, explain its likely impact on income, output and employment.

15. With an objective to reduce inflation, the Reserve Bank of India may promote the commercial banks to park their surplus funds with it." Discuss the rationale behind the step taken by the Reserve Bank of India.

**OR**

"We cannot measure the national income of an economy unless we measure the market value of all final goods and services produced in an economy in terms of money." Which function of money is highlighted in the given statement? Discuss.

16. (a) Given the following data, estimate the values of: (i) revenue deficit, (ii) fiscal deficit and (iii) primary deficit

Particulars	Rs. Crores
Capital receipts net of borrowings	95
Revenue expenditure	100
Interest payments	10
Revenue receipts	80
Capital expenditure	110

- (b) "Fiscal deficit is necessarily inflationary in nature." Do you agree? Support your answer with valid reasons.

**OR**

- (a) Government provides essential items of food grains almost free to the families below the poverty line. Which objective is the government trying to fulfill through the government budget and how? Explain.
- (b) "The government budget of a country cannot have a fiscal deficit without the existence of a revenue deficit." Defend or refute the given statement.

17. (a) Find out Gross National Product at Market Price:

Particulars	Rs. Crores
Net Indirect Tax	35
Private final consumption expenditure	500
Consumption of fixed capital	50
Closing stock	10
Government final consumption expenditure	150
Net domestic fixed capital formation	100
Net factor income to abroad	(-)15
Net imports	20
Opening stock	10

- (b) Giving reason, explain how the following should be treated in estimating the domestic income of a country.
- (i) Fees to a mechanic paid by a firm.
  - (ii) Interest paid by an individual on a car loan taken from a bank.
  - (iii) Expenditure on purchasing a car for use by a firm.

### PART B- INDIAN ECONOMY

18. On the eve of Independence, India's demographic condition was characterized by which of the following statements?
- (a) low level of literacy, low mortality rates and high life expectancy
  - (b) high level of literacy, high mortality rate and low life expectancy
  - (c) low level of literacy, high mortality rate and high life expectancy
  - (d) low level of literacy high mortality rates and low life expectancy
19. Arrange the following events in the correct chronological order:
- (i) The year of Great Divide
  - (ii) Establishment of Tata Iron and Steel Company (TISCO)
  - (iii) Introduction of Railways in India by the British
  - (iv) Opening of Suez Canal
20. Read the following statements: Assertion(A) and Reason(R). Choose one of the correct alternatives given below.
- Assertion(A):** The goal of equitable distribution of land was fully served by abolition of intermediaries, in post-independence India.
- Reason(R):** Big landlords challenged the land ceiling legislation, delaying the implementation and subsequently escaping from the legislation.
- Alternatives:**
- (a) Both Assertion(A) and Reason(R) are true and Reason(R) is the correct explanation of Assertion(A).
  - (b) Both Assertion(A) and Reason(R) are true and Reason(R) is not the correct explanation of Assertion(A).
  - (c) Assertion(A) is true but Reason(R) is false.
  - (d) Assertion(A) is false but Reason(R) is true.
21. Which of the following is not the feature of economic policies pursued under economic planning of India till 1991?
- (a) Import Substitution
  - (b) Self Reliance
  - (c) Unrestricted flow of foreign capital
  - (d) Land reforms

22. Read the following statements carefully.

**Statement 1:** The process of globalization has produced only positive results for India.

**Statement 2:** Market driven globalization reduces the economic disparities among nations and people.

In the light of the given statements, choose the correct alternative from the following:

- (a) Statement 1 is true and statement 2 is false
  - (b) Statement 1 is false and statement 2 is true
  - (c) Both statements 1 and 2 are true
  - (d) Both statements 1 and 2 are false
23. On 24th July, 1991, the then Prime Minister Narasimha Rao announced the end of the license permit Raj and Finance Minister Manmohan Singh presented a historic budget that rolled out economic \_\_\_\_\_ in India.
- (a) Globalization
  - (b) Liberalization
  - (c) Privatization
  - (d) None of these
24. Benefits of physical capital accrue only to private entities, whereas human capital provides private as well as \_\_\_\_\_ benefits.
- (a) Profitable
  - (b) Social
  - (c) Fiscal
  - (d) Monetary

**OR**

On the basis of the below mentioned information answer the following question:

Particulars	1951	1981	1991	2001	2016-17
Real Per Capita Income (in Rs.)	7,651	12,174	15,748	23,095	77,659

The real per capita income of India (as per the given data) has increased by \_\_\_\_\_ (approximately) between 1951 and 2016-17. (Fill in the blank with correct alternative)

- (a) 915%
  - (b) 1,015%
  - (c) 815%
  - (d) 715%
25. Identify which of the following are associated with the problem of human capital formation in India?
- (i) Brain Drain
  - (ii) Low academic standards
  - (iii) Rising population
  - (iv) Changes in Social Outlook
- Alternatives:**
- (a) (i) and (ii)
  - (b) (ii) and (iii)
  - (c) (i), (ii) and (iii)
  - (d) (i) and (iv)

26. 'Cooperative marketing societies have faced a downfall in recent years.' Identify which of the following was not a reason behind its downfall.
- (a) Lack of coordination between processing and marketing societies
  - (b) Inefficient financial management
  - (c) Inadequate coverage of all the members
  - (d) Intervention of the government is most essential
27. Study the following picture and answer the given question:



Women in rural households take up beekeeping as an entrepreneurial activity. Such kind of activities may be envisaged under \_\_\_\_\_ as diversification activity.

- (a) Animal Husbandry
  - (b) Fisheries
  - (c) Horticulture
  - (d) Poultry
28. "Demand for Indian Handicrafts in the Indian market as well as foreign markets was systematically destroyed by Britishers." Defend or refute.
29. "Modernisation as a planning objective shows a dichotomy with employment generation." Justify the statement.

**OR**

What is meant by privatization? What are the two ways in which privatization was done in India?

30. "Agriculture sector appears to be adversely affected by the economic reform process." Explain the given statement.

**OR**

India has certain advantages which makes it a favourable outsourcing destination. What are these advantages?

31. 'Higher productivity and production is the result of investment in human resources.' Do you agree with the statement? Explain in context with the given image.



32. Discuss the merits and limitations of Organic Farming.

33. (a) A dentist ran his clinic in an economically backward area. He was earning a comparatively low income. So, he decided to move to a city and spent a huge amount for the same. Identify and explain the type of expenditure incurred by the dentist which directly contributed to the process of human capital formation.

(b) Discuss the need for promoting women's education in India.

**OR**

(a) "Process of globalization has produced only positive results for India and other countries." Comment.

(b) Discuss the foreign trade reforms under Liberalisation.

34. **Read the following article and answer the questions that follow:**

Crop diversification is intended to give a wider choice in the production of a variety of crops in a given areas so as to expand production related activities on the various crops and also to less than risk top diversification in India is generally viewed as a shift from traditionally grown list remunerative crops to more remunerative props the crops the crop shift also takes place due to government policy.

Development in the field of crop diversification goes hand in hand with agriculture marketing. Agriculture Marketing System is an efficient way by which the farmers can dispose off their surplus produce at a fair and reasonable price. When there is a shift from single cropping system to multi cropping system, it needs to be backed by the support of agricultural markets, wherein, the government should take various initiatives to give boost to the small farmers by providing them Direct Access to the consumers and eliminating the middlemen.

(a) Mention some obstacles that hinder the mechanism of agriculture marketing.

(b) Why is agriculture diversification essential for sustainable livelihood?

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# DELHI PUBLIC SCHOOL

SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 3 Hours

Subject - English  
Maximum Marks-80

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## General Instructions:

- Read all the questions carefully.
  - All questions are compulsory to be attempted.
  - The question paper is divided into three sections: **A, B and C (Reading, Writing and Literature)**.
  - Separate instructions are given with each section and question, wherever necessary. Read these instructions very carefully and follow them.
  - Do not exceed the prescribed word limit while answering the questions.
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## SECTION A [22 Marks]

### READING

#### 1. Read the passage below :

{12 marks}

1. If you enjoy watching crime shows on TV, you know that fingerprints play a major role in identifying people. But, you might be surprised to find out that use of fingerprints for identification is not a new science. In Babylon (1955 – 1913 BCE), when people agreed to a business contract, they pressed their fingerprints into the clay on which the contract was written. Thumbprints have also been found on clay seals from ancient China 221 (BCE).
2. In 14<sup>th</sup> century Persia, which is now Iran, a government doctor recognised that all fingerprints are different. In 1684, a British doctor, Nehemiah Grew, spoke about the ridged surfaces of the fingers. In 1686, a professor of anatomy (the study of the structure of the human body) named Marcello Malpighi, wrote about the ridges and loops in fingerprints. Malpighi's work was considered so important that a layer of skin found on the fingertips was named after him. This layer of skin is called the Malpighian layer. Although scientists had studied fingerprints, the value of fingerprinting in the identification of individuals did not become clear until later.
3. Sir William James Herschel is generally thought to be the first European to realise that fingerprints were unique of each person. In his work as Chief Magistrate in the Hoogly district in Jungipoor, India, Herschel asked people to put their handprints on contracts. Herschel believed that personal contact with the contracts made people more likely to honour their commitments, or to keep their promises. As he looked at more and more handprints, he began to see that all the handprints were different. He started to believe that fingerprints were unique, which means they are all different from each other, and permanent, which means that they do not ever change. To prove that they never change, Herschel kept track of his own fingerprints over his entire lifetime.

4. Dr Henry Faulds, a British surgeon at a Japanese hospital, began studying the furrows (also called ridges) on fingertips in the 1870s. He published an article in a scientific journal about the use of fingerprints as a tool in identification. He also devised or invented a system of classifying fingerprints. He wrote to Charles Darwin about his findings, but Darwin was getting too old to work on the findings. So, he promised to pass the information to his cousin, Sir Francis Galton. Using Henry Faulds' findings, Galton published a major book on classifying fingerprints based on arches, loops, and whorls. His work with Sir Edward R. Henry on fingerprint classification was the basis of a classification system which is still used by law enforcement agencies in English-speaking countries. The Federal Bureau of Investigation (FBI) now uses a variation of the Galton-Henry system.
5. Although the use of fingerprinting in identification originated in Britain, it has been developed in the United States. In 1924, two large fingerprint collections were combined to form the foundation of the Identification Division of the FBI. Within the Identification Division, the Integrated Automated Fingerprint Identification Systems (IAFIS) can search and find fingerprints anywhere in the United States within thirty minutes. The IAFIS can compare results with automated fingerprint systems in countries around the world. The IAFIS has fingerprints of more than 250 million people on file.
6. About one in six Americans has fingerprints on file with the FBI. But not all fingerprints are related to criminal investigations. People need to have their fingerprints taken for many other reasons. People have their fingerprints taken for employment, licenses, and adoption. For example, when people work for the government in classified jobs, their fingerprints are checked to be sure that they do not have a criminal background. When prospective parents adopt a child, their fingerprints are matched against those of all criminals for the safety of the child.

**Based on your understanding of the passage, answer the questions given below.**

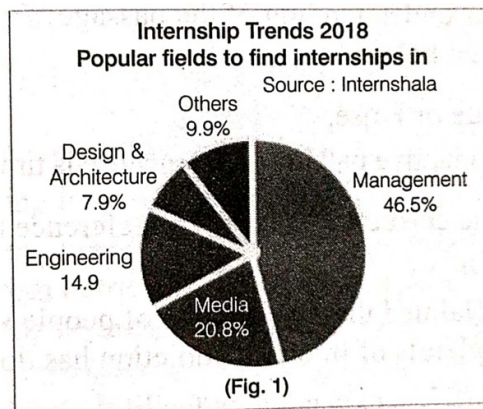
- (i) **Which fingerprint system is used by an intelligence driven international security organization?** (1)
- (ii) **When people agreed to a business contract in Babylon they took off their fingerprints from the clay on which the contract was written. State TRUE/FALSE.** (1)
- (iii) **How did Herchel prove that fingerprints were unique and permanent? (30-40 words)** (2)
- (iv) **Where did the practice of using fingerprinting for identification first originate?** (1)
  - a. Britain
  - b. China
  - c. India
  - d. Babylon
- (v) **'People need to have their fingerprints taken for many other reasons.' Elucidate. (30-40 words)** (2)
- (vi) **What can the IAFIS do?** (1)
  - a. It can dismantle the foundation of the Identification Division of the FBI.
  - b. It can search and find fingerprints anywhere in the United States.
  - c. It can compare results with automated fingerprint systems in countries around the world.
  - d. Both (b) and (c)

- (vii) **FBI formed the foundation of its Identification Division by combining \_\_\_\_\_** (1)
- (viii) **Who was Marcello Malpighi? Why was he a known personality?** (2)
- (ix) **Which word from the passage corresponds to the word 'potential'.** (1)
- a. Adoption (para 6)
  - b. Investigations (para 4)
  - c. Classified (para 6)
  - d. Prospective (para 6)

**2. Read the passage below :**

**{10 Marks}**

1. Over the last five years, more companies have been actively looking for intern profiles, according to a 2018-19 survey by an online internship and training platform. This survey reveals that India had 80% more internship applications - with 2.2 million applications received in 2018 compared to 1.27 million in the year before. The trend was partly due to more industries looking to have fresh minds and ideas on existing projects for better productivity. What was originally seen as a western concept, getting an internship before plunging into the job market, is fast gaining momentum at Indian workplaces.
2. According to the survey data, India's National Capital Region has been the top provider of internships, with a total of 35% internship opportunities, followed by Mumbai and Bengaluru at 20% and 15%, respectively. This includes opportunities in startups, MNCs and even government entities. The survey also revealed popular fields to find internships in (Fig 1).



3. There has been growing awareness among the students about the intern profiles sought by hiring companies that often look for people with real-time experience in management than B-school masters.
4. The stipend has been an important factor influencing the choice of internships. The survey data reveals that the average stipend offered to interns was recorded as 7000 while the maximum stipend went up to ₹ 85,000. According to statistics, a greater number of people considered virtual internships than in-office internships. Virtual internships got three times more applications than in-office, since a large chunk of students were the ones already enrolled in various courses, or preferred working from home.
5. Internship portals have sprung up in the last three to four years and many of them already report healthy traffic per month. Reports suggest that on an average, an internship portal company has around 200,000plus students and some 8,000 companies registered on it. It gets around two lakh visits online every month.

6. The Managing Director of a leading executive search firm says that though these web platforms are working as an effective bridge between the industry and students, most established companies are still reluctant to take too many interns on board for obvious reasons.

**Based on your understanding of the passage, answer the questions given below.**

- (i) Does the following statement agree with the information given in the passage. Established companies are reluctant to take too many interns on board.**

**TRUE** If the statement agrees with the information.

**FALSE** If the statement contradicts the information.

**NOT GIVEN** If there is no information on this. (1)

- (ii) Select the central idea of the paragraph likely to precede Paragraph I.**

- a. Process of registering for internships
- b. Knowing more about internships
- c. Do's and Don'ts for an internship interview
- d. Startups and internships (1)

- (iii) The survey statistics mention the average stipend, indicating that**

- a. 50% interns were offered Rs.85,000
- b. 7,000 was the lowest and Rs. 85,000 was the highest
- c. Most interns were offered around 7,000
- d. No intern was offered more than 7,000 (1)

- (iv) Select the correct inference with reference to the following.**

*Over the last five years, more companies have been actively looking for intern profiles...*

- a. The past five years have seen active applications by interns to several companies.
- b. The activity for intern profiling by the companies has reached a gradual downslide over the past five years.
- c. There were lesser companies searching for intern profiles earlier, as compared to those in the recent five years.
- d. Several companies have initiated intern profiling five times a year in the recent past. (1)

- (v) Companies do not prefer taking many interns because\_\_\_\_\_.** (1)

- (vi) Internship websites have increased in the past few years and are now showing a significant \_\_\_\_\_.** (1)

- (vii) Highlight two trends that demonstrate the increasing prominence of internships in Indian workplaces. (30 – 40 words)** (2)

- (viii) Mention the two types of internships. Which one is preferred more by students and why? (30 – 40 words)** (2)

**SECTION B: CREATIVE WRITING SKILLS (18 marks)**

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

{4}

A. You are Rakhsita/Rohit of MVN Public School. Your school is organising a SPIC MACAY programme on the occasion of the World Dance Day wherein the renowned Bharatnatyam dancer, Geeta Chandran would be giving a lecture-demonstration. As the President, Cultural Society of your school, draft a notice **in about 50 words**, informing the students about the same.

**OR**

B. You visited PGIMS, Rohtak and found that there was a shortage of blood for accidental cases. After that, you decided to organize a blood donation camp in your school's campus to help the needy ones at PGIMS Rohtak. Therefore, as the Principal of G.S.S.S. Model Town, Rohtak, you decided to organize a blood donation camp at the school auditorium urging the parents to be a part of this project. Write a notice for the students asking them to convey this message to their parents to come and participate in the blood donation drive. **(50 Words)**

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

{4 marks}

A. You are Dhruv/Deepa. Your father, Shri Dheeraj Garg of Gurugram wants you to draft an invitation card to be sent to friends and relatives on the occasion of your elder sister's marriage. Prepare the invitation giving necessary details, in not more than **50 words**.

**OR**

B. 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. **(50 Words)**

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

{5marks}

A. You are Tarun/Taruna of 121 Main Street, Kanpur, a student aspiring to be a doctor. The recent horrifying incident in Kolkata, where a young woman faced a traumatic experience within the hospital premises disturbed you a lot. You were compelled to write a letter to The Editor of a national daily demanding the concerned authorities to urgently improve safety protocols in hospitals to ensure that women are protected in a place meant to provide care and security.

**(120-150 Words)**

**OR**

B. You are Shantanu, residing at Ghar B-94, Balimela Road, Malkangiri. You come across the following classified advertisement in a local daily. Write a letter, in about 120-150 words, applying for the position of a volunteer for the 'Each One Teach One' campaign.

**SITUATION VACANT**

WANTED committed volunteers, aged 18 years and above, to teach underprivileged children, for one hour a week, in the district of Malkangiri. Ability to speak, read and write Odiya fluently, Experience not necessary. All volunteers to receive training. Contact Nethra N, Coordinator (Each One Teach One), 4Literacy, Ambaguda, Malkangiri, Odisha - 764045.

6. Attempt ANY ONE of the two in about 120-150 words.

{5marks}

- A. On the threshold of being a world super power, India does have a large young workforce but unfortunately not many in this force are employable for want of necessary skills. Write an article for a newspaper on the topic '**Skill Development is the need of the hour**'. You are Anita/Arnav. (120-150 Words)

OR

- B. You are Akhil/Anjana, a reporter of the local newspaper The Assam Times, Silchar, Assam. Recently, your city experienced a lot of rain and consequently people living in the low-lying areas suffered a lot of difficulties. NDRF rescue teams reached the affected areas in time. The marooned people were taken to safer places and provided with shelter, food and medicines. Write a report on the floods and rescue efforts by the government and locals in **120-150 words**.

**SECTION C- LITERATURE TEXT BOOK AND SUPPLEMENTARY READING TEXT {40 marks}**

7. Read the extracts given below and answer the questions that follow. (ANY ONE ) {1x6=6}

- A. *If we were not so single-minded  
about keeping our lives moving.  
And for once could do nothing.  
Perhaps a huge silence  
Might interrupt this sadness  
of never understanding ourselves  
and of threatening ourselves with  
Death*

- (i) Who does 'we' refer to in the above lines?  
(ii) Why does the poet want us to 'do nothing' for once?  
a. To aggravate brotherhood  
b. To give rest to your speech for a few minutes  
c. To introspect ourselves  
d. None of these

(iii) What do understand by the phrase single minded

(iv) What does 'keeping our life moving' mean?

(v) What is the tone of the poet in the following lines :

*Perhaps a huge silence  
Might interrupt this sadness*

- a. Unsure  
b. Pessimistic  
c. Optimistic  
d. Both (a) and (c)

(vi) What does the poet hope for?

- a. Man would become less interested in each other  
b. Man would stop to focusing more on keeping his life moving.  
c. Man would begin to be more humane if he begins to introspect.  
d. Man would develop new ideas to destroy each other.

OR

**B. And such too is the grandeur of dooms**  
*We have imagined for the mighty dead:*  
*All lovely tales that we have heard or read:*  
*An endless fountain of immortal drink,*  
*Pouring unto us from the heaven's brink.*

- (i) What do the tales refer to in the above lines?
- (ii) What does Keats mean by 'an endless fountain of immortal drink'?
- (iii) Which of the following poetic devices has been used in the fourth line of the stanza?
  - a. Alliteration
  - b. Personification
  - c. Hyperbole
  - d. Metaphor
- (iv) Which word from the following means the same as 'indestructible'?
- a. Immortal
  - b. Pouring
  - c. Dead
  - d. None of these
- (v) What is the effect of immortal drink?
- (vi) Explain the phrase, 'Grandeur of dooms'.

8. Read the given extracts and answer ANY ONE of the two given.

{1×4=4}

*A. From that day onwards it was celebration time for all the tigers inhabiting Pratibandapuram. The state banned tiger hunting by anyone except the Maharaja. A proclamation was issued to the effect that if anyone dared to fling so much as a stone at a tiger, all his wealth and property would be confiscated.*

*The Maharaja vowed he would attend to all other matters only after killing the hundred tigers. Initially the king seemed well set to realise his ambition. Not that he faced no dangers. There were times when the bullet missed its mark, the tiger leapt upon him and he fought the beast with his bare hands. Each time it was the Maharaja who won.*

- (i) What is the tone of the author when he says, 'it was celebration time for all tigers'?
- (ii) The Maharaja paid no heed to matters related to his kingdom. (True/False)
- (iii) In which of the following options can the underlined words NOT be replaced with 'proclamation'?
  - a. The politician shared his manifesto during the election meeting.
  - b. All the citizens of the kingdom had to abide by the emperor's edict.
  - c. The communique made by the official had a disastrous effect.
  - d. The decree of the state forbade cruelty against animals.

- (iv) On the basis of this extract, pick the option that enumerates the characteristics of the king.
- a. Gullible
  - b. Arrogant
  - c. Stubborn
  - d. Prudent
  - e. Apathetic
  - f. Scrupulous
- a. (1),(2) and (6)
  - b. (3), (5) and (6)
  - c. (3), (4) and (6)
  - d. (2), (3) and (5)

OR

**B.** *You lose all earthly sense of perspective and time here. The visual scale ranges from the microscopic to the mighty: midges and mites to blue whales and icebergs as big as countries (the largest recorded was the size of Belgium). Days go on and on and on in surreal 24-hour austral summer light, and a ubiquitous silence, interrupted only by the occasional avalanche or calving ice sheet, consecrates the place. It's an immersion that will force you to place yourself in the context of the earth's geological history. And for humans, the prognosis isn't good.*

- (i) Complete the following statement. The 'visual scale' refers to \_\_\_\_\_.
- (ii) Four people give a reason for the author's feeling while travelling. Choose the option that correctly summarizes it based on your understanding of the extract.

Person 1

I think the author is being paranoid about leaving her hometown.

Person 2

According to me, She is bewildered by the travel duration.

Person 3

As far as I can judge, Tishani is being hypocritical because she is comparing the two places.

Person 4

In my opinion, she is amazed by the splendor of the icy city.

- a. Person 1
- b. Person 2
- c. Person 3
- d. Person 4



(iii) Select the option that correctly fits the category of microscopic to the mighty" out of the ones given below.

1. Trace of a skin cell: trace of a bird's egg
  2. A grain of wheat: field of wheat
  3. A scoop of ice cream: an ice-cream cone
  4. A drop of water: Pacific Ocean
- a. (1) and (2)
  - b. (3) and (4)
  - c. (1) and (3)
  - d. (2) and (4)

(iv) What are the elements that influence someone to think of Earth's physicality.

9. Read the given extracts and answer the questions for ANY ONE of the two given. {1x6=6}

A. *It seemed a long way down. Those nine feet were more like ninety, and before I touched bottom my lungs were ready to burst. But when my feet hit bottom I summoned all my strength and made what I thought was a great spring upwards, I imagined I would bob to the surface like a cork. Instead, I came up slowly. I opened my eyes and saw nothing but water water that had a dirty yellow tinge to it. Deep Water*

(i) Why did the nine feet deep pool seem ninety to Douglas?

(ii) The expression "I imagined I would bob to the surface like a cork" implies that

- (a) Frightened, Douglas was not able to shout for help.
- (b) Douglas accepted his failure and ultimate death.
- (c) Though Douglas was frightened he was not out of his wits.
- (d) Douglas was afraid to die.

(iii) Pick the word from the given extract which means to make a quick, short movement up and down.

(iv) What does the speaker mean by 'I summoned all my strength'?

- (a) That he called up his strength.
- (b) That he accumulated his strength.
- (c) That he gathered his strength.
- (d) All of these

(v) Where did the given event take place?

(vi) "It seemed a long way down." What was the author referring to?

OR

B. *Sharecroppers from Champaran began arriving on foot and by conveyance to see their champion. Muzzafarpur lawyers called on Gandhi to brief him; they frequently represented peasant groups in court; they told him about their cases and reported the size of their fee. Gandhi chided the lawyers for collecting big fee from the share croppers.*

(i) How did the sharecroppers arrive in Muzzafarpur?

- a. Some sharecroppers arrived on foot.
- b. Some sharecroppers arrived by conveyance.
- c. Both (a) and (b)
- d. Neither (a) nor (b)

(ii) Who is 'champion' here?

(iii) Who are they in the above mentioned extract?

(iv) Which word in the given extract is the antonym of 'erratically' ?

(v) In which of the following sentences has the word 'chided' been used in the same context as in the extract?

- A. The other guys on the team chided him for missing that easy basket.
- B. Mom chided me for coming to the party without a gift.
- C. Maria chided Gerald for being late.
- D. The Dean chided the management for upgrading the fees indiscriminately

(vi) Who are sharecroppers?

- (a) Farmers who get to share their crops.
- (b) Farmers who get a share of the crops.
- (c) Farmers who own their crops
- (d) Farmers who sells their crops.

**10. Answer ANY FIVE of the following six questions in about 40-50 words. {5X2=10marks}**

(i) What can be inferred from Rajendra Prasad's recorded upshot of the lawyer consultations, at Motihari? [Reference- *The senior lawyer replied, they had come to advise and help him; if he went to jail there would be nobody to advise and they would go home. What about the injustice to the sharecroppers, Gandhi demanded.*] (Indigo)

(ii) State the common issues faced by most of the aged people in current times with reference to the poem 'My Mother at Sixty Six'.

(iii) 'Food is more important for survival than an identity.' Examine 'Lost Spring' by Anees Jung in the light of this statement.

(iv) "...there was terror in my heart at the overpowering force of the waves." When did Douglas start fearing water? Which experience had further strengthened its hold on his mind and personality? ( *Deep Water* )

(v) "To be grateful is a great virtue of a gentleman." How did the peddler show his gratitude to Edla ?

(vi) In Robert Frost's poem "The Roadside Stand," cars symbolize both the promise and the disillusionment brought by modernity and urbanization. Comment.

**11. Answer ANY TWO of the following three questions in about 40-50 words. {2X2=4}**

(i) What did the astrologer foretell about the death of the Tiger King? ( *The Tiger King* )

(ii) 'Take care of the small things and the big things will take care of themselves.' What is the relevance of this statement in the context of the Antarctica? ( *Journey to the End of the World* )

(iii) What transpired as the second event that afternoon. Why did it scare Hana, Dr Sadao's wife, so desperately?

**12. Answer ANY ONE of the following two questions in about 120 -150 words.**

**{5 marks}**

- A. *While greedy good-doers, beneficent beasts of prey,  
Swarm over their lives enforcing benefits  
That are calculated to soothe them out of their wits*

Keeping the above lines by Robert Frost in his poem 'A Roadside Stand' in mind, explain what according to the author refrains the bangle makers from organizing themselves into a cooperative? **(120-150 words)**

**OR**

- B. You are the Head boy or Head girl of your school. You have to deliver a speech in the morning assembly explaining the distinction between feeling proud of one's language and having an overarching sense of pride? Write a speech in not more than **120-150 words**.

**13. Answer ANY ONE of the following two questions in 120-150 words.**

**{5 marks}**

- A. *"The chain reaction of evil – hate begetting hate, wars producing more wars – must be broken, or we shall be plunged into the dark abyss of annihilation."* – Martin Luther King Jr.

Write an article for a popular political journal as Dr Sadao highlighting the futility of war in about **120-150 words**.

**OR**

- B. Sam's letter addressed to Charley exhibits a refined amalgamation of tangible reality and imaginative abstraction. After reading the letter, Charley decided to write him back in order to get the answer of all his questions. **(120-150 words.)**
-



# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 2 Hours

Subject - Fine Art Painting (049) /Graphics (050)  
Maximum Marks - 30

### General Instructions:

- Section-A: Attempt all Questions (Each Question will carry 1 Mark)
- Section-B: Attempt all Questions (Each Question will carry 2 Marks)
- Section-C: Attempt any two Questions (Each Question will carry 6 Marks)

### SECTION-A

Select the right answer from the given options:

[1x8=8]

1. A. The colour medium used in the making of Miniature paintings from Pala to Mughal mainly consists of \_\_\_\_\_  
i. Oil Colour    ii. Natural Colour    iii. Pastel Colour    iv. Metallic Colour
- B. **Assertion (A):** The Mughal School of Miniature Painting used decorative borders to enhance the beauty of the paintings.  
**Reason (R):** Artists of Mughal courts used floral motifs and gold to make their paintings look royal and grandeur.  
i. Both A and R are true, and R is the correct explanation of A  
ii. Both A and R are true, but R is not the correct explanation of A  
iii. A is true but R is false  
iv. A is false and R is true
- C. The miniature paintings based on Ragmala, Baramasa, Krishna Lila and Ramayana were the main themes of the following school of art.  
i. Shahjahan school    ii. Hyderabad school    iii. Rajasthani school    iv. Akbar school
- D. The style and mastery of artistic representation of forms in bright colours with natural surroundings having delicate outlines, depicting female forms in Deccan style is shown in the painting:  
i. Radha Bani Thani    ii. Maru Ragani    iii. Chaugan Players    iv. Chand Bibi Playing Polo
- E. The dance of Krishna and Gopis symbolically indicates the dance of God and \_\_\_\_\_.
- F. **Assertion (A):** During the 18th Century, Deccan Miniature paintings glorified the empowerment of Female rulers.  
**Reason (R):** The brave, generous and gallant Chand Bibi is shown playing polo with other females.  
i. Both A and R are true and R is the correct explanation of A  
ii. A is true but R is false  
iii. A is false and R is True  
iv. Both A and R are true, but R is not the correct explanation of A
- G. **In Mughal Paintings blue colour were obtained from**  
i. Cinnabar    ii. Lapis – Lazuli    iii. Orpiment    iv. Grounded shells
- H. Match the tables I with Table II from the options given below:

Table I	Table II
1. Krishna on swing	a. Guman
2. Maru – Ragini	b. Sahibdin
3. Bharat meets Rama at Chitrakut	c. Unknown
4. Hazrat Nizamuddin Aaliya and Amir Khusro	d. Nuruddin

## **SECTION-B**

**(Short answer type questions)**

**The answer to this question is expected around 80 to 100 words**

**[2x5=10]**

2. (A) Write a short note on Pala (Eastern) Indian miniature painting.

**OR**

Write a short note on Jain (Western) Indian miniature painting.

**OR**

- (B) How did the Central Indian miniature painting evolve?

3. (A) Miniature paintings are also a reflection of female status and dignity. It also reflects the empowered woman, her versatile personality, overcoming traditional norms, and engaging all strata of society. Throw light on this subject matter through the painting “Chaugan Players”. How successful do you think the artist Dana has been showcasing their valour (courage)?

**OR**

- (B) Based on its Compositional Arrangement, appreciate the simplicity and bond of Eternal Friendship in the painting “Kabir and Raidas”.

- (a) How can you justify the simple living and dignity of work depicted in this artwork?
- (b) Write the name of the Artist and its Medium / Technique.

4. (A) Why do you like or dislike the paintings of the Deccan School of miniature painting included in your course of study? Write your answer in detail with a suitable example.

**OR**

- (B) Describe the depiction of the Krishna-Lila themes in the Pahari miniature paintings according to the paintings in your syllabus.

5. (A) The Mughal school paintings depict the royal splendour and flamboyance of the Mughal rulers. Validate the statement with the help of paintings included in your course of study (*except Kabir and Ridas*)

**OR**

- (B) How the Pahari School of Miniature Painting came into existence. Mention any two Pahari sub-schools with names of paintings and artists in your syllabus.

6. (A) Explain the silent features of Pahari school painting.

**OR**

- (B) The aesthetical depiction of nayika in the Rajasthani miniature painting made by the artist Nihal Chand captures the beauty and pride of an Indian Woman.

- (i) Name the Painting and describe the features of this sub-school.
- (ii) How did the Indian government give this painting its due respect?

## **SECTION-C**

**Attempt any two questions from the given options (Long answer type questions)**

**An answer for this question is expected in around 200 words**

**[6x2=12]**

7. Discuss the impact of Mughal miniatures on Indian painting. Discuss the influence of the Mughal style, its detailed portrayal, and its themes, origin, development and characteristics.

8. Discuss the evolution of Indian miniature painting. Highlight the Origin and development, features of Rajasthani School.

9. (A) How Artists Contributed to the National Freedom Movement.

- (B) Our national flag is the identification of our country and its citizens. It narrates thousands of stories of courage and sacrifice, peace and honesty, chivalry and prosperity, embracing secularism as it proudly flies high in our independent sky.

- Do you feel we still imbibe these qualities in us?
  - Explain your point of view. How can these values help us in contributing towards the progress of our country?
-



# DELHI PUBLIC SCHOOL

SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 1 Hour

Subject - General Studies  
Maximum Marks - 50

## I. Select the best option in the following questions

(1X10= 10 Marks)

1. "System of Air Quality and Weather Forecasting and Research" (SAFAR) is an initiative of which Union Ministry of India?
  - (a) Ministry of Environment, Forest and Climate Change
  - (b) Ministry of Earth Sciences
  - (c) Ministry of Science and Technology
  - (d) Ministry of Agriculture and Farmers Welfare
2. Who is the first Indian cricketer to hit 400 international sixes?
  - (a) Rohit Sharma
  - (b) Virat Kohli
  - (c) Rahul Dravid
  - (d) MS Dhoni
3. What is the full form of "BRICS"?
  - (a) Bangladesh, Romania, Indonesia, Cambodia and Spain
  - (b) Botswana, Rwanda, Ivory Coast, Croatia and Sydney
  - (c) Bangladesh, Romania, India, Cambodia and Somania
  - (d) Brazil, Russia, India, China and South Africa
4. Match the following
  - (i) Kalamkari
  - (ii) Pithora
  - (iii) Warli
  - (iv) Madhubani
  - (a) Madhya Pradesh
  - (b) Maharashtra
  - (c) Bihar
  - (d) Andhra Pradesh
  - (a) (i)-(c), (ii)-(b), (iii)-(a), (iv)-(d)
  - (b) (i)-(d), (ii)-(a), (iii)-(b), (iv)-(c)
  - (c) (i)-(d), (ii)-(b), (iii)-(a), (iv)-(c)
  - (d) (i)-(d), (ii)-(c), (iii)-(b), (iv)-(a)
5. If D is the Brother of B, how B is related to C? To answer this question which of the statement/s is/are necessary?
  1. The son of D is the grandson of C.
  2. B is the sister of D.
  - (a) Only 1
  - (b) Only 2
  - (c) Either 1 or 2
  - (d) Both 1 and 2 are required

6. Who wrote the book 'The Wealth of Nations'?
  - (a) Raghuram Rajan
  - (b) E.M. Forster
  - (c) Adam Smith
  - (d) None of the given
7. Who appoints the Finance Commission Chairman in India?
  - (a) RBI Governor
  - (b) CAG of India
  - (c) President of India
  - (d) Central Finance Minister
8. Which Five Year Plan had the primary goal to establish India as a self-reliant and self-generating economy?
  - (a) First five year plan
  - (b) Second five year plan
  - (c) (c)Third five year plan
  - (d) Fourth five year plan
9. The world's nation 5G mobile network was launched by which country?
  - (a) Japan
  - (b) Asia
  - (c) South Korea
  - (d) Malaysia
10. The largest public sector undertaking in the country is?
  - (a) Railways
  - (b) Airways
  - (c) Roadways
  - (d) Iron and Steel Plants

**II. ANSWER THE FOLLOWING QUESTIONS IN 120-10 WORDS (8X4=32 Marks)**

1. What are the Challenges faced by the Indians in transitioning to a Cashless society?
2. The Flag Code of India, published in 2002, is a collection of all the laws, customs, practices, directives, and rules that govern the display of the national flag. Many citizens, whether consciously or inadvertently, violate the Flag Code. The Ministry of Home Affairs (MHA) has issued advice to all States and Union Territories to ensure that the Flag Code is strictly followed during major national events.  
Write a paragraph in 120 to 150 words on 'The Flag Code of India'.
3. What is the difference between environmental conservation and environmental preservation?
4. How does the Russian Ukraine war affect the economy of India?

**III. CASE STUDIES (8X1=8Marks)**

Case: A criminal has killed Mohan's mother during a bank robbery. He killed her intentionally in order to create fear in the minds of people present in the bank that day, so that nobody interferes during the robbery. He has been caught but the damage has already been done. The criminal has been sentenced for life imprisonment 8 years later, Mohan is contacted by an NGO which works for the rehabilitation of criminals in the society. The NGO informs Mohan that the criminal who killed his mother is suffering from blood cancer and has only maximum one more year to live. If Mohan permits by signing the amnesty plea, this criminal can spend his last time with his family. What and why in your opinion Mohan should do in this situation?



# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII

Time - 3 Hours

Subject - Geography

Maximum Marks - 70

### GENERAL INSTRUCTIONS:

1. This question paper contains 32 questions. All questions are compulsory.
2. This question paper is divided into five sections. Sections - A, B, C, D and E.
3. Section A - Question numbers 1 to 20 are Multiple Choice type questions carrying 1 mark each.
4. Section B - Question numbers 21 and 22 are Source based questions carrying 3 marks each.
5. Section C- Question numbers 23 to 25 are Short Answer type questions carrying 3 marks each. Answer to these questions shall be written in 80 to 100 words.
6. Section D - Question numbers 26 to 30 are Long Answer type questions carrying 5 marks each. Answer to these questions shall be written in 120 to 150 words.
7. Section E - Question numbers 31 and 32 are Map based questions.

### SECTION - A

(Q. Nos. 1 to 20 are Multiple Choice Questions.)

1. Make correct pairs of the following two columns and select the correct option. [1]

#### Period

- I. Early colonial period
- II. Later colonial period
- III. 1930s through the inter-war period
- IV. Late 1950s to the late 1960s

#### Approaches

- 1. Spatial Organisation
- 2. Areal Differentiation
- 3. Regional Analysis
- 4. Exploration and Description

#### Options:

- |     | I | II | III | IV |
|-----|---|----|-----|----|
| (A) | 2 | 1  | 4   | 3  |
| (B) | 2 | 3  | 4   | 1  |
| (C) | 4 | 3  | 2   | 1  |
| (D) | 4 | 1  | 2   | 3  |

2. Which one of the following is NOT a push factor? [1]

- (A) Water shortage
- (B) Unemployment
- (C) Epidemics
- (D) Pleasant climate

3. Which of the following features is related to the second stage of Demographic Transition Theory? [1]

- (A) Both fertility and mortality decline considerably
- (B) Fertility remains high in the beginning and mortality rate reduced
- (C) High fertility and high mortality
- (D) Fertility declines and mortality increased



4. Which of the following pairs is NOT correctly matched? [1]

Pillars of Human Development		Indicators
(A) Productivity	-	Resources must be used keeping in mind the future
(B) Equity	-	Making equal access to opportunities available to everybody
(C) Sustainability	-	Continuity in the availability of opportunities
(D) Empowerment	-	To have the power to make choices

5. Consider the following statements and choose the correct answer with the help of given options. [1]

**Statement I:** Gathering is practised in regions with harsh climatic conditions.

**Statement II:** Gathering often involves primitive societies.

**Options:**

- (A) Only statement I is correct.
- (B) Both the statements are correct
- (C) Only statement II is correct.
- (D) Both the statements are incorrect.

6. In which of the following types of agriculture is the farming of citrus fruit very important? [1]

- (A) Mediterranean agriculture
- (B) Market gardening
- (C) Plantation agriculture
- (D) Co-operative farming

7. Which one of the following features is correct about cottage industries? [1]

- (A) It is a large manufacturing unit.
- (B) Raw material is imported from outside markets.
- (C) Goods produced by them have low commercial significance.
- (D) Finished products are sold in the open market.

8. Two statements are given below. They are Assertion (A) and Reason (R). Read both the statements carefully and choose the correct option. [1]

**Assertion (A) :** Industries based on ores are located close to the sources of raw material.

**Reason (R) :** Industries maximise profits by reducing transportation costs.

**Options:**

- (A) (A) is correct and (R) is false.
- (B) (A) is false and (R) is correct.
- (C) Both (A) and (R) are correct and (R) is the correct explanation of (A).
- (D) Both (A) and (R) are correct and (R) is not correct explanation of (A).

9. Which one of the following activities is related to quaternary activities? [1]

- (A) Production of information
- (B) Fishing
- (C) Tourism
- (D) Trading

10. In a developed economy, the majority of workers get employment in which of following sectors of economy? [1]

- (A) Quinary Sector
- (B) Tertiary Sector
- (C) Secondary Sector
- (D) Primary Sector

11. Two statements are given below. They are Assertion (A) and Reason (R). Read both the statements carefully and choose the correct option. [1]  
**Assertion (A)** : In some reasons tourism is seasonal.  
**Reason (R)** : The vacation period is not dependent on favourable weather conditions.  
**Options:**  
 (A) (A) is correct and (R) is false.  
 (B) (A) is false and (R) is correct.  
 (C) Both (A) and (R) are correct and (R) is the correct explanation of (A).  
 (D) Both (A) and (R) are correct and (R) is not correct explanation of (A).
12. Consider the following statements and choose the correct answer with the help of given options. [1]  
**Statement I**: The number of female workers is relatively low in primary sector in India  
**Statement II**: In recent years there has been some improvement in work participation of women in secondary and tertiary sectors in India.  
**Options:**  
 (A) Only statement I is correct.  
 (B) Both the statements are correct  
 (C) Only statement II is correct.  
 (D) Both the statements are incorrect.
13. The characteristics of an agricultural crop in India are given below. Read them carefully and identify the crop. [1]
- |   |
|---|
| <ul style="list-style-type: none"> <li>• It is a tropical crop.</li> <li>• It is grown in Kharif season in semi-arid areas of the country.</li> <li>• It requires clear sky during flowering stage.</li> <li>• Leading producers of this crop are Gujarat and Maharashtra.</li> </ul> |
|---|
- Crop:**  
 (A) Tea  
 (B) Cotton  
 (C) Maize  
 (D) Jute
14. Which of the following is NOT the benefit of rainwater harvesting? [1]  
 (A) It increases water availability.  
 (B) It checks the declining groundwater table.  
 (C) It improves the quality of groundwater through dilution of contaminants like fluoride and nitrates.  
 (D) Helpful in production of hydroelectricity.
15. Which of the following is an example of organic non-metallic mineral? [1]  
 (A) Coal                      (B) Limestone                      (C) Mica                      (D) Graphite
16. In which Five Year Plan, Hill Area Development Programmes were initiated? [1]  
 (A) First Five Year Plan                      (B) Third Five Year Plan  
 (C) Fifth Five Year Plan                      (D) Seventh Five Year Plan
17. Which of the following plan was introduced to improve the conditions of roads in India after independence? [1]  
 (A) Five Year Road Plan                      (B) Nagpur Plan  
 (C) Ten-Year Road Plan                      (D) Twenty-Year Road Plan

Study the given table carefully and answer the question no 18 to 20

### India – Trends of Urbanisation 1901 - 2011

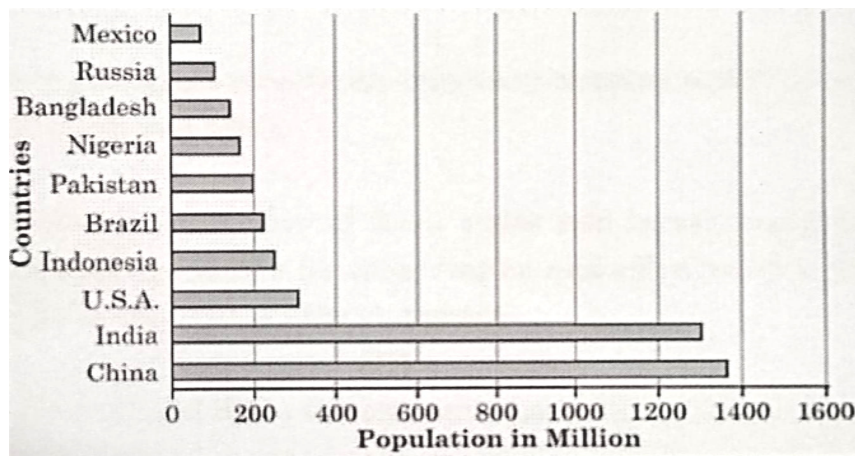
Year	Number of Towns/UAs	Urban Population (in Thousands)	% of Total Population	Decennial Growth (%)
1901	1,827	25,851.9	10.84	—
1911	1,815	25,941.6	10.29	0.35
1921	1,949	28,086.2	11.18	8.27
1931	2,072	33,456.0	11.99	19.12
1941	2,250	44,153.3	13.86	31.97
1951	2,843	62,443.7	17.29	41.42
1961	2,365	78,936.6	17.97	26.41
1971	2,590	1,09,114	19.91	38.23
1981	3,378	1,59,463	23.34	46.14
1991	4,689	2,17,611	25.71	36.47
2001	5,161	2,85,355	27.78	31.13
2011*	6,171	3,77,000	31.16	31.08

18. Which of the following decades has the largest decennial growth of towns? [1]  
 (A) 1941 - 1951 (B) 1931 - 1941  
 (C) 1911 - 1921 (D) 2001 - 2011
19. Which of the following decades has highest growth of urban population? [1]  
 (A) 1901 - 1911 (B) 1951 - 1961  
 (C) 1921 - 1931 (D) 1991 - 2001
20. In which of the following decades has the number of towns declined? [1]  
 (A) 1991 - 2001 (B) 1971 - 1981  
 (C) 1901 - 1911 (D) 2001 - 2011

### SECTION - B

(Q. Nos. 21 and 22 are Source Based Questions.)

21. Study the given figure carefully and answer the following questions: [3]



Most Populous Countries

- (21.1) Name the highest populous country. [1]  
 (21.2) How many total countries of North America continent are shown in the figure? [1]  
 (21.3) How do landforms affect the density of population in Asia? [1]

22. Read the given passage carefully and answer the questions that follow: [3]

India has traditionally been an agrarian economy, and about two-third of its population have been dependent on agriculture. Hence, development of irrigation to increase agricultural production has been assigned a very high priority in the Five Year Plans, and multipurpose river valleys projects, like the Bhakra-Nangal, Hirakud, Damodar Valley, Nagarjuna Sagar, Indira Gandhi Canal Project, etc., have been taken up. In fact, India's water demand at present is dominated by irrigational needs.

Agriculture accounts for most of the surface and groundwater utilisation, it accounts for 89 per cent of the surface water and 92 per cent of the groundwater utilisation. While the share of industrial sector is limited to 2 per cent of the surface water utilisation and 5 per cent of the ground-water, the share of domestic sector is higher (9 per cent) in surface water utilisation as compared to groundwater. The share of agricultural sector in total water utilisation is much higher than other sectors. However, in future, with development, the shares of industrial and domestic sectors in the country are likely to increase.

(22.1) Which sector uses most of the surface and groundwater in India? [1]

(22.2) Name any two states where groundwater utilisation is very high. [1]

(22.3) Why is irrigation needed in agriculture sector in India? [1]

### SECTION C

(Q. Nos. 23 to 25 are Short Answer Type Questions.)

23. "Physical environment has been greatly modified by human beings, it has also, in turn impacted human lives." Explain the statement. [3]

**OR**

"Human Geography is the study of the changing relationship between the unresting man and unstable earth." Support the statement.

24. "The size of a territory and per capita income are not directly related to human development." Support the statement with examples. [3]

25. Which is the most effective and advanced personal communication system in India? Explain any two characteristics of it. [3]

**OR**

How are Indian railways contributing to the growth of national economy? Explain with examples.

### SECTION - D

(Q. Nos. 26 to 30 are Long Answer Type Questions.)

26. Describe any five characteristics of 'commercial livestock rearing' in the world. [5]

**OR**

Explain any five characteristics of 'mixed farming' in the world.

27. "High technology is the latest generation of manufacturing activities." Examine the statement. [5]

**OR**

Analyse the classification of industries on the basis of raw materials used.

28. Examine the different aspects of the growth of population in India during 1951 - 1981 and 1981 - 2021. [5]

29. 'Low productivity' and 'lack of land reforms' are the major problems of Indian agriculture." Substantiate the statement. [5]

**OR**

Classify Indian farming into two groups on the basis of main source of moisture for crops. Write two feature of each.

30. Explain any five measures necessary for the promotion of sustainable development in 'Indira Gandhi Canal Command Area'. [5]

**SECTION - E**

**(Q. Nos. 31 and 32 are Map Based Questions.)**

31. On the given political map of the world, seven geographical features have been marked as **A, B, C, D, E, F and G**. Identify any **FIVE** correctly with the help of the following information and write their correct names on the lines marked near them. [5]

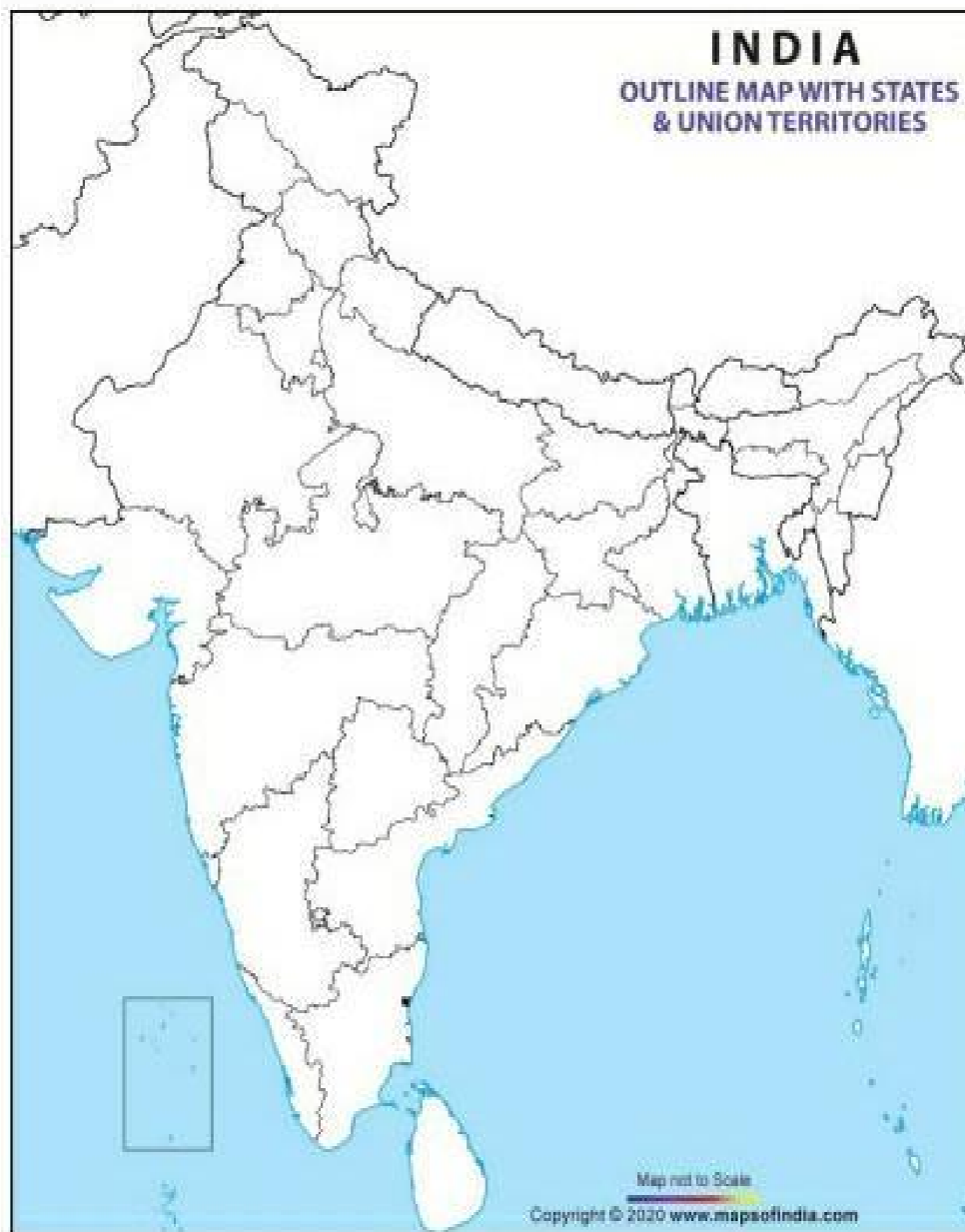
- (A) An area of subsistence gathering in South America
- (B) A major area of nomadic herding in Asia
- (C) A major area of commercial livestock rearing in Australia
- (D) A major area of extensive commercial grain farming in North America
- (E) A major area of mixed farming in Europe
- (F) A major area of nomadic herding in Africa
- (G) An area of subsistence gathering in Africa

32. Locate and label any **FIVE** of the following geographical features on the given political outline map of India with appropriate symbols: [5]

- (A) A state leading in the production of coffee
  - (B) A state with lowest population density
  - (C) Mayurbhanj : Iron ore mines
  - (D) Khetri : Copper mines
  - (E) Raniganj : Coal mines
  - (F) Mathura : Oil refinery
  - (G) Katni : Bauxite mines
-



Q.32





# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

### HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 3 Hours

Subject - History  
Maximum Marks - 80

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#### General Instructions:

- i. Question paper comprises five Sections – A, B, C, D and E. There are 34 questions in the question paper. All questions are compulsory.
  - ii. Section A – Question 1 to 21 are MCQs of 1 mark each.
  - iii. Section B – Question no. 22 to 27 are Short Answer Type Questions, carrying 3 marks each. Answer to each question should not exceed 60-80 words.
  - iv. Section C – Question no 28 to 30 are Long Answer Type Questions, carrying 8 marks each. Answer to each question should not exceed 300-350 words.
  - v. Section D – Question no.31 to 33 are Source based questions - with three sub questions- and are of 4 marks each.
  - v. Section-E – Question no. 34 is Map based, carrying 5 marks that includes the identification and location of significant test items. Attach the map with the answer book.
  - vi. There is no overall choice in the question paper. However, an internal choice has been provided in few questions. Only one of the choices in such questions have to be attempted.
  - vii. In addition to this, separate instructions are given with each section and question, wherever necessary.
- 

#### SECTION A

1. Which one of the following statement is correct regarding Virashaivas?
  - a. It means heros of shiva
  - b. They wore the idol of Shiva in their left shoulder
  - c. They were persistent regarding the purity of caste as Basavanna, the founder was a Brahmin himself
  - d. They believed a sati is the best position a women could achieve
2. Arrange in sequence
  - i. MulkAbadi
  - ii.MansilAbadi
  - iii. SipahAbadi

#### Codes

- a. ii,i,iii,
- b. i,iii, ii
- c. iii, ii, i
- d. ii, iii, i



**3. Read the informations given below**

- i. They were the leaders at local level in rural India
- ii. They were highly privileged in their village
- iii. They headed the village panchayat

Identify and choose the correct answer from the following

- a. Mandal
- b. Vadan
- c. Mawas
- d. Diwan

**4. Study the following statements carefully**

- i. A character of Mahabharata
- ii. Blessed by his teacher to be unrivalled among his pupil
- iii. His father is said to be the king of all Gods

Now choose the correct answer

- a. Yudhistira
- b. Ekalavya
- c. Arjuna
- d. Karna

**5. Amuktamalyada' written by Krishna Deva Raya was in**

- a. Malayalam
- b. Telugu
- c. Kannada
- d. Tamil

**6. Consider the following statements and choose the correct option**

- I. Europeans were the first foreigners who had written detailed account of trade, religion and society in medieval India
- II. Many Europeans who came to India were merchants, doctors and other professional who were looking for commercial opportunities in India.

- a. Only I is correct
- b. Only II is correct
- c. Both I and II are correct
- d. Both I and II are incorrect

**7. Which of the following countries 'Duarte Barbosa' belonged to?**

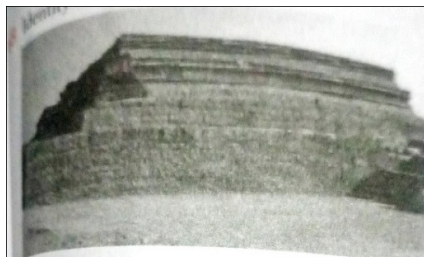
- a. Russia
- b. Portugal
- c. Spain
- d. France

**8. Who was the first Bikkuni?**

- a. Maya Devi
- b. Sanghamitra
- c. Mahapajapati Goutami
- d. Prabhavati Gupta

9. To justify their claim of supremacy Brahmanas often cited a verse from a hymn in the Rigveda. Identify its name from the following
- Manusmriti
  - Purushardha
  - Purushasukta.
  - Naitikashastra
10. There are two statements marked as Assertion (A) and Reason (R ). Mark your answer as per the codes provided below.
- Assertion (A):** Lingayats did not practice after death practices like the rest of Hindus
- Reason(R):** Lingayats believed that on death the devotee will be united with Shiva and will not return to this world
- Both A and R are true and R is the correct explanation of A
  - Both A and R are true but R is not the correct explanation of A
  - A is correct but R is wrong
  - A is wrong but R is correct
11. Consider the following statements and choose the correct option
- Both Khud Kashta and Pahi Kashta were residents of their own village
  - Only Pahi Kashta owned the Land in their own village
- Codes
- Only I is correct
  - Only II is correct
  - Both I and II are correct
  - Both I and II are not correct
12. Abu'Ifazl was a court historian of which Mughal Emperor?
- Humayun
  - Babur
  - Akbar
  - Jahangir
13. Why was Vijaya nagara named as Hampi?
- Select the appropriate option from the following
- This name was given by KrishnadevaRaya
  - This name was derived by Colin Meckenzie
  - This name was derived from the local Goddess named Pampadevi
  - This name was devoted to Virupaksha, a local deity
14. Consider the following statements and choose the correct answer
- The original version of Mahabharata was written in Sanskrit
  - According to Shastras, only Kshatriyas could be kings
  - During the Mahbharata age, gotras were considered very important by the higher varnas of the society
  - The Mahabharata gives vivid descriptions of battles forests palaces and settlements
- Codes
- i and ii
  - ii and iii
  - i, ii and iii
  - i, ii, iii and iv

15. Who is considered as the founder of Jainism?
- Rishabh dev
  - Mahavira
  - Parshvanadha
  - Padmaprabha
16. Who among the following Gurus of Sikhs compiled Shree Guru AdiGranth Sahib?
- Guru Arjan Dev
  - Guru Nanak Dev
  - Guru Govind Singh
  - Guru TegBahadur
17. **Read the following statements carefully**
- It is a dargah of the Shaikh MoinuddinChisti
  - Akbar visited this place several time  
locate this from place from the following options.
- Delhi
  - Ajmer
  - Mehrauli
  - FatehpurSikri
18. If arranged in chronological order which dynasty would be the first one in Vijayanagara Empire
- Arvidu
  - Tuluva
  - Sangama
  - Saluva
19. Who wrote the book Kitab-UI-Hind
- Abul Fazl
  - Abdul khan Samrkhand
  - Al-Biruni
  - Abdur Razzak
20. Identify the term which defines the given below statement and give the correct answer.  
"The stupa originated as a simple semi circular mound of earth "
- Marmik
  - Amalka
  - Anda
  - Harmika
21. Identify the following figure



- Mandapa from Hazara Rama Temple
- Gopuram from virupaksha temple
- Carving from Mahanavami Dibba
- Stamba from Lotus Mahal

## **SECTION B**

22. Discuss whether the Mahabharata could have been the work of a single author
23. Discuss the brilliance of architecture in the city of Vijayanagara specially mentioning about its Fortifications?
24. Explain the observations of Ibn Battuta about the cities of India, with special reference to Delhi.
25. Explain the role of women in the agrarian society in the sixteenth and seventeenth century Mughal India
26. 'The Zamindars regularly failed to pay the land revenue demand after the introduction of the Permanent Settlement in Bengal.' Examine the causes of the same
27. How does Mahanavami Dibba shows the imperial power of Vijayanagara?

## **SECTION C**

28. What do visual representations tell us about the revolt of 1857? How do historians analyse these representations
29. Explain the background of the growth of Buddhism along with its main philosophical teachings.
30. 'The similarity between the major teachings in Bhakti -Sufi traditions are commendable ' Elucidate.

## **SECTION D**

### **SOURCE /CASE BASED QUESTIONS**

31. **Read the source given below and answer the questions that follow**

#### **A Language with and Enormous Range**

Al-Biruni described Sanskrit as follows: If you want to conquer this difficulty (i.e. to learn Sanskrit), you will not find it easy, because the language is of an enormous range, both in words and inflections, something like the Arabic, calling one and the same thing by various names, both original and derivative, and using one and the same word for a variety of subjects, which, in order to be properly understood, must be distinguished from each other by various qualifying epithets.

- (i) How did Al-Biruni compare Sanskrit with Arabic? [1]
- (ii) Give an example of the work Al-Biruni translated in Arabic from Sanskrit. [1]
- (iii) Analyse the reason of Sanskrit considered as a language with enormous range. [2]

32. **Read the source given below and answer the questions that follow:**

#### **From the Fifth Report**

Referring to the condition of zamindars and the auction of lands, the Fifth Report stated: The revenue was not realised with punctuality, and lands to a considerable extent were periodically exposed to sale by auction. In the native year 1203, corresponding with 1796-97, the land advertised for sale comprehended a jumma or assessment of sicca rupees 28,70,061, the extent of land actually sold bore a jumma or assessment of 14,18,756, and the amount of purchase money sicca rupees 17,90,416. In 1204, corresponding with 1797-98, the land

advertised was for sicca rupees 26,66,191, the quantity sold was for sicca rupees 22,74,076, and the purchase money sicca rupees 21,47,580. Among the defaulters were some of the oldest families of the country. Such were the rajahs of Nuddea, Rajeshaye, Bishenpore (all districts of Bengal),... and others, the dismemberment of whose estates at the end of each succeeding year, threatened them with poverty and ruin, and in some instances presented difficulties to the revenue officers, in their efforts to preserve undiminished the amount of public assessment.

- (i) Examine the reason for calling it as a 'Fifth Report'.
- (ii) Why were activities of East India Company closely debated in England?
- (iii) What was the condition of the zamindars according to the report

**33. Read the source given below and answer the questions that following**

**Draupadi's Questions**

Draupadi is supposed to have asked Yudhishthira whether he had lost himself before staking her. Two contrary opinions were expressed in response to this question. Once, that even if Yudhishthira had lost himself earlier, his wife remained under his control, so he could stake her. Two, that an unfree man (as Yudhishthira was when he had lost himself) could not stake another person. The matter remained unresolved, ultimately, Dhritarashtra restored to the Pandavas and Draupadi their personal freedom.

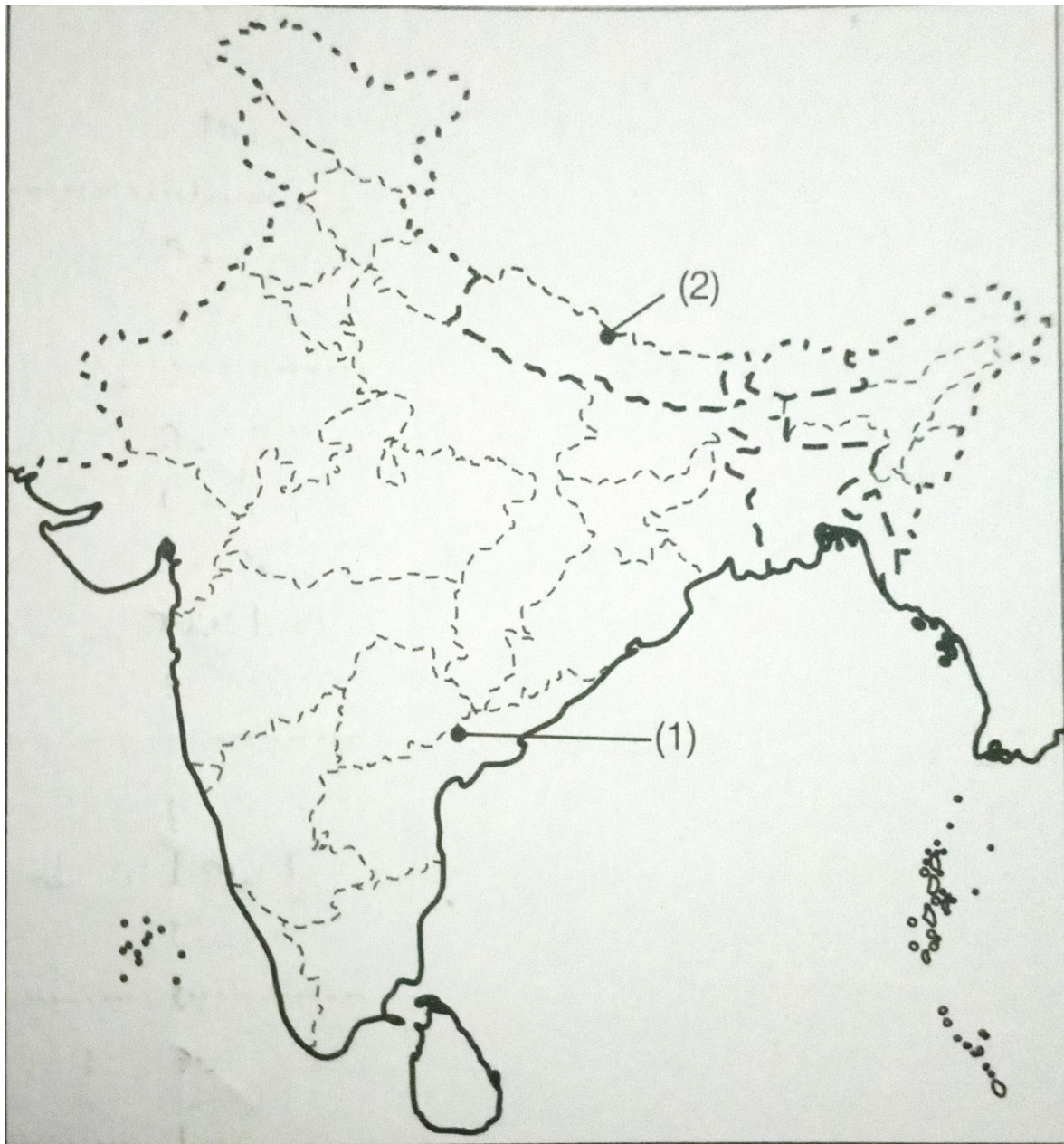
- (i) How did Draupadi's questions unsettle everyone in the assembly?
- (ii) What was the implication of her questions?
- (iii) What makes Draupadi's question admirable?

**SECTION E**

34. A. Identify the two major Buddhist centres marked as 1 & 2 and label them in the given map of India

B. Locate and Label the following Centres of revolt of 1857

- i. Delhi
  - ii. Jhansi
  - iii. Meerut
-





# DELHI PUBLIC SCHOOL

SAIL Township, Ranchi

## HALF YEARLY EXAMINATION 2024

Class: XII

Time: 03:00 Hr.

Subject: Informatics Practices (065)

Marks: 70

### General instructions:

#### General Instructions:

- Please check 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 4 questions (29 to 32). Each question carries **3 Marks**.
- Section D consists of 2 case study type questions (33 to 34). Each question carries **4 Marks**.
- Section E consists of 3 questions (35 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

- 01. State whether True or False:** (1)
- (i) Copying someone else's work/programs and claiming them as your own is an act of plagiarism.
  - (ii) Cyber bullying is an attempt to acquire sensitive information such as usernames, passwords and credit card details by sending emails or instant messaging.
- 02. Which of the following is not done by cyber criminals?** (1)
- (A) Unauthorized account access
  - (B) Mass attack using Trojans as botnets
  - (C) Email spoofing and spamming
  - (D) Report vulnerability in any system
- 03. An organization purchase new computers every year and dumps the old one into the local dumping yard. Write the name of the most appropriate category of waste that the organization is creating every year, out of the following options:** (1)
- (A) Business waste
  - (B) Commercial waste
  - (C) E-waste
  - (D) Green waste
- 04. Which type of values will be returned by SQL while executing the following statement?** (1)
- Select Length("LENGTH");
- (A) Numeric value
  - (B) Text value
  - (C) Null value
  - (D) Float value

05. If column “salary” contains the data set (45000, 5000, 55000, 45000, 55000), what will be the output after the execution of the given query? (1)
- SELECT AVG (DISTINCT Salary) FROM employee;
- (A) 38500 (B) 40000  
(C) 41000 (D) 35000
06. Single row function is: (1)
- (A) That finds the average of a column.  
(B) That extracts a certain number of characters of a string.  
(C) IN clause.  
(D) DISTINCT clause.
07. The correct SQL from below to find the temperature, in increasing order of all cities. (1)
- (A) SELECT city FROM weather order by temperature;  
(B) SELECT city, temperature FROM weather;  
(C) SELECT city, temperature FROM weather ORDER BY temperature;  
(D) SELECT city, temperature FROM weather ORDER BY city;
08. Which one of the following is not an aggregate function? (1)
- (A) Min (B) Sum  
(C) With (D) Avg
09. Where and Having clauses can be used interchangeably in SELECT queries? (1)
- (A) True (B) False  
(C) With update (D) With order by
10. Given a Pandas series HEAD, the command which will display excluding last 3 rows is: (1)
- (A) print(HEAD.head(3)) (B) print(HEAD.head(-3))  
(C) print(HEAD.heads(3)) (D) print(head.Head(-3))
11. In order to draw charts in Python, which of the following statement will be used: (1)
- (A) import pyplot.matplotlib as pl (B) import matplotlib.pyplot as plt  
(C) import matplotlib.pyplot.plt (D) import pyplot from matplotlib as plt
12. We can create DataFrame from: (1)
- (A) Series (B) Numpy arrays  
(C) List of Dictionaries (D) All of the above
13. What is plagiarism? (1)
- (A) Using copyrighted material without acknowledgement.  
(B) Downloading software without legal license.  
(C) Spreading misinformation online.  
(D) Hacking into computer systems.



14. In SQL, which function returns the date & time both: (1)  
 (A) SYSDATE (B) NOW  
 (C) None of these (D) Both of these
15. \_\_\_\_\_ is the attempt by individual to obtain confidential information from you through an original looking site and URL. (1)  
 (A) Pharming attack (B) Plagiarism  
 (C) Spamming (D) Phishing scam
16. Chitra sets up her own company to sell her own range of clothes on Instagram. What type of intellectual property can she use to show that the clothes are made by his company. (1)  
 (A) Patents (B) Copyright  
 (C) Trademark (D) Production Certificate
17. Which Matplotlib plot is best suited to represent changes in data over time? (1)  
 (A) Bar plot (B) Histogram (C) Line plot (D) Histogram & Bar plot
18. Boolean indexing in Pandas DataFrame can be used for \_\_\_\_\_. (1)  
 (A) Creating a new DataFrame  
 (B) Sorting data based on index labels  
 (C) Joining data using labels  
 (D) Filtering data based on condition
19. Which of the following Python statements is used to import data from a CSV file into a Pandas DataFrame (Note: pd is an alias for pandas)? (1)  
 (A) pd.open\_csv('filename.csv') (B) pd.read\_csv('filename.csv')  
 (C) pd.load\_csv('filename.csv') (D) pd.import\_csv('filename.csv')
- Q-20 and Q-21 are Assertion (A) and Reason (R) Type questions. Choose the correct option as:*
- (A) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A)  
 (B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A)  
 (C) Assertion (A) is True, but Reason (R) is False  
 (D) Assertion (A) is False, but Reason (R) is True
20. Assertion (A): We can add a new column in an existing DataFrame. (1)  
 Reason (R): DataFrames are size mutable.
21. Assertion (A): In SQL, INSERT INTO is a Data Definition Language (DDL) Command. (1)  
 Reason (R): DDL commands are used to create, modify, or remove database structures, such as tables.

## Section – B

22. What is a Series in Python Pandas? Also, give a suitable example to support your answer. (2)  
 OR  
 What does the term 'library' signify in Python? Mention one use for each of the following libraries:  
 • Pandas  
 • Matplotlib
23. Neelam, a database administrator needs to display Class wise total number of students of 'XI' and 'XII' house. She is encountering an error while executing the following query: (2)

SELECT CLASS, COUNT (\*) FROM STUDENT ORDER BY CLASS

HAVING CLASS='XI' OR CLASS= 'XII';

Help her in identifying the reason of the error and write the correct query by suggesting correction (s).

24. What is the purpose of GROUP BY clause in SQL? Explain with the help of suitable example. (2)

25. Write a program to create a series object using a dictionary that stores the number of Schools in each city of cities of your state. (2)

**Note:** Assume some cities like Ranchi, Patna, Kolkata, Bhubaneswar having 4, 3, 5, 4 branches respectively and pandas' library has been imported as mypandas.

26. Write any two points to manage e-west and also mention any two net-etiquettes. (2)

OR

Differentiate between the active digital footprint and passive digital footprints.

27. What will be the output of the following code: (2)

```
>>> import pandas as pd
>>> mydata=pd.Series( ['rajesh', 'amit', 'tarun', 'Radhika'] )
>>> print(mydata < 'rajesh' )
```

28. Carefully observe the following code: (2)

```
>>> import pandas as pd
>>> xiic = {'amit':34, 'kajal':27, 'ramesh':37}
>>> xiid = {'kajal':34, 'lalta':33, 'prakash':38}
>>> result = {'PT1':xiic, 'PT2':xiid}
>>> df = pd.DataFrame(result)
>>> print(df)
```

Now answer the following:

(i) List the index of the DataFrame df

(ii) Find the output of the following code: print(df.loc['kajal': 'ramesh'])

## Section-C

29. Write outputs for SQL queries (i) to (iii) which are based on the given table GAME (3)

GID	NAME	DATEOFGAME	UNDER	WINNER
1	JUDO	2022-10-17	17	RAMESH
2	BADMINTON	2022-5-18	14	KIRTI
3	JUDO	2022-8-18	19	KAMAL
4	TAEKWONDO	2021-7-20	14	SADIQ
5	CHESS	2021-5-6	17	ALANKAR

(i) Select name, under, winner from GAME where month(DateOfGame)>7;

(ii) Select Lcase(Mid(winner,2,3)) from GAME where NAME like “%O”;

(iii) Select Mod(Under, Month(DateOfGame)) from GAME where NAME=“CHESS”;

30. Write a Python code to create a DataFrame with appropriate column headings from the list given below: (3)

```
[[1001,'IND-AUS','2022-10-17'], [1002,'IND-PAK','2022-10-23'], [1003,'IND-SA' , '2022-10-30'],
[1004,'IND-NZ','2022-11-18']]
```

31. Consider the given DataFrame 'Items': (3)

	Name	Price	Quantity
0	CPU	7750	15
1	Watch	475	50
2	Key Board	225	25
3	Mouse	150	20

Write suitable Python statements for the following:

- Add a column called Sale\_Price which is 10% decreased value of Price
- Add a new item named "Printer" having price 8000 and Quantity as 10.
- Remove the column Quantity

32. Consider the following tables STOCK & COMPANY as given here, write suitable SQL queries for the following: (1+2)

Table: STOCK

STOCKID	NAME	COMPANY	TYPE	DOPURCHASE	Quantity
1	Photoshop	Adobe	SW	5-Oct-2022	1
2	Windows 10	Microsoft	SW	15-Apr-2021	5
3	Mother Board	ASUS	HW	8-Sep-2022	5
4	Office 2007	Microsoft	SW	8-Jul-2022	2
5	Hard Disk	Seagate	HW	6-Feb-2021	10
6	Azure	Microsoft	SW	17-Jul-2022	6

Table: COMPANY

STOCKID	LOCATION	Price
1	Paris	8000
3	New York	10000
5	Beijing	7500
7	New Delhi	5500
9	Singapore	9000

- Display company wise highest Quantity available
- Display Product Names, Company, Location & Price present in the above tables.

**OR**

Consider the following tables:

**Table 1: ATHLETE**, which stores AthleteID, Name, Country. The table displays basic information of the athletes

**Table 2: MEDALS**, which stores AthleteID, Sport, and Medals. The table displays the number of medals won by each athlete in their respective sports.

**Table: ATHLETE**

AthleteID	Name	COUNTRY
101	Arjun	INDIA
102	Priya	INDIA
103	Asif	UAE
104	Rozy	USA
105	David	DENMARK

**Table: MEDALS**

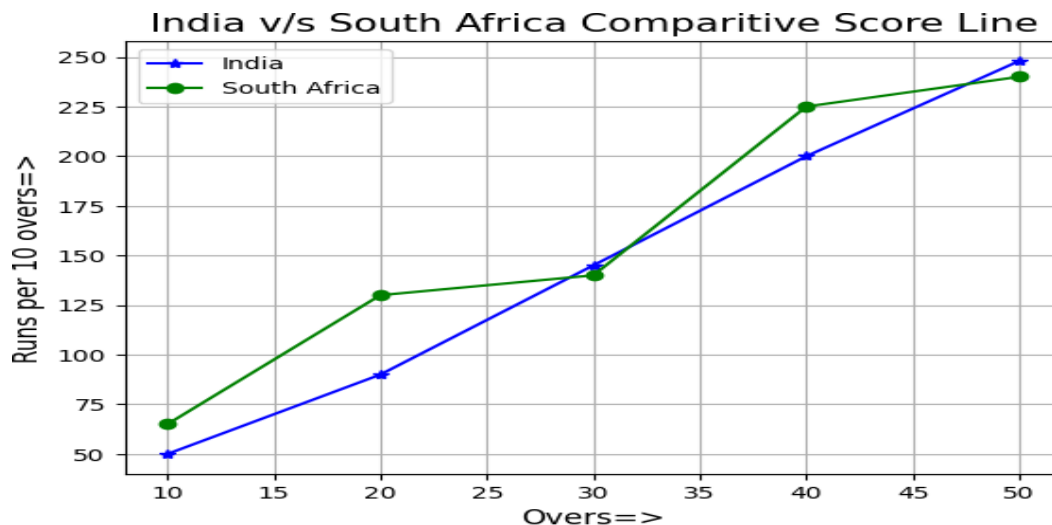
AthleteID	Sport	Medals
101	Swimming	8
102	Track	3
103	Gymnastics	5
104	Swimming	2
105	Track	6

Write appropriate SQL queries for the following:

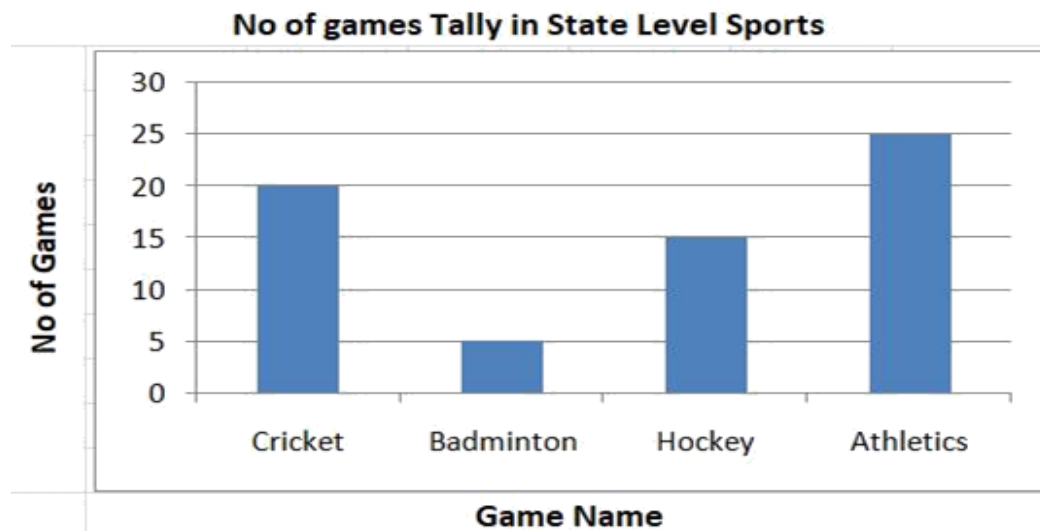
- Display the sports-wise total number of medals won.
- Display the names of all the Indian athletes in uppercase.
- Display the athlete's name along with their corresponding sports.

## Section – D

33. Observe the following figure. Identify the coding for obtaining this as output, where score (4) progress of two cricket teams (India & South Africa) in this graph is plotted. Also assign suitable Title, and labels in x-axis and y-axis. Finally give a python statement to save this graph.



34. Write Python code to plot a bar chart for No of Games in State Level Sports shown below: (4)



Give suitable python statement to save this chart along with Captions as Title, x-axis & y-axis.

## Section – E

35.

movieID	Name	Rating	Production	Collection	DORRelease
201	Nadiya Ke Par	A+	Rajshree	400	15-Aug-1989
202	Hum Aapke Hain Kaun	A+	Dharma	1500	4-May-1992
203	Veer Zara	A	Yashraj	1100	25-Oct-2004
204	Chandni	A+	Yashraj	2000	8-Nov-1989
205	Om Shanti Om	A	Red Chillies	2007	14-Nov-2007

**Harsh, a movie information collector has designed a database for Indian movies. Help him by writing answers of the following questions based on the above table MOVIE:** (1+1+1+2)

- (i) Write a query to display movie name and production – both in upper case
- (ii) Write a query to display all details of movies released in year 1989
- (iii) Write a query to display records in descending order on Collection, those have A+ rating.
- (iv) Write a query to count production wise total number of movies

**OR (Option for part iv only)**

Write a query to count rating wise total number of movies

**36. Mr. Sumit in data-analysis having “Comp.CSV” file where data on Computer infrastructure is stored as given below. Now answer:** (1+1+1+2)

	A	B	C
1	School	Non-working	Working
2	MPS	10	70
3	SFC	12	76
4	JPS	4	21
5	APS	6	39
6	DPS	6	54

- (i) Create a DataFrame from this .csv with ‘S01’, ‘S02’, ‘S03’, ‘S04’, ‘S05’, ‘S06’ as indexes
- (ii) Add a new column **Tot\_Comp** of sum of Working & Non-working computers.
- (iii) Write Python statement to display the data of working column of indexes S03 to S05.
- (iv) Predict the output of the following python statement:  
 (A) df.shape                      (B) df[2:4]

**OR (Option for part ii only)**

Write Python statement to compute and display the difference of data of non-working column and working column of the above given DataFrame.

**37. Write suitable SQL query for the following:** (5)

- (i) Display 4 characters extracted from 3rd character onwards from string ‘IMPOSSIBLE’.
- (ii) Display the position of occurrence of string ‘GO’ in the string “LET’s GO to GOA”.
- (iii) Round off the value 257.75 to nearest ten rupees.
- (iv) Display the remainder of 18 divided by 5.
- (v) Remove all the leading and trailing spaces from a column passwd of the table ‘USER’.

**OR**

**Explain the following SQL functions using suitable examples.**

- (i) MONTHNAME()
- (ii) SUBSTRING()
- (iii) LTRIM()
- (iv) ROUND()
- (v) RIGHT()

###



# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 2 Hours

Subject - Hindustani Music Vocal  
Maximum Marks- 30

### सामान्य निर्देश :

इस प्रश्न पत्र में तीन खण्ड हैं क , ख और ग।

खण्ड-क 1 अंको का है। सभी प्रश्न अनिवार्य हैं।

खण्ड-ख 2 अंको का है। सभी प्रश्न अनिवार्य हैं।

खण्ड-ग 6 अंको का है। सभी प्रश्न अनिवार्य हैं।

### खण्ड क

[1×8=8]

1. स्पर्श स्वर किसे कहते हैं?

- i) वर्ण
- ii) मीड
- iii) मुर्की
- iv) कण

2. जब तीन स्वरों को तेज़ गति में गाया बजाया जाता है तो उस क्रिया को क्या कहते हैं?

- i) मीड
- ii) वर्ण
- iii) मुर्की
- iv) अलंकार

3. 'मीड' लिखने के लिए उल्टा अर्ध चंद्र कहा लगाते हैं?

- i) दायी ओर
- ii) बाई ओर
- iii) ऊपर
- iv) नीचे

4. अध्वदर्शक स्वर किसे कहा गया है?

- i) षडज
- ii) धैवत
- iii) मध्यम
- iv) रिषभ

5. तीव्र मध्यम वाले राग किस समय गाए जाते हैं?

- i) सुबह
- ii) दोपहर
- iii) रात
- iv) किसी भी समय

6. मिलान कीजिए ।

I

II

- |              |             |
|--------------|-------------|
| क. आश्रय राग | 1. ग्राम    |
| ख. षडज       | 2. भैरव     |
| ग. बागेश्री  | 3. औडव- औडव |
| घ. मालकौंस   | 4. काफी थाठ |

- i) क- 2, ख-1, ग- 4, घ-3
- ii) क -2, ख -3, ग -4, घ-1
- iii) क -3, ख -4, ग- 2, घ-1
- iv) क -4, ख -3, ग- 2, घ-1

7. कथन- I: ताल रूपक का सम ,खाली पर आता है।

कथन - II : रूपक ताल मे 8 मात्राएं होती है।

इन कथनों के आलोक मे निम्न लिखित विकल्पों मे से सही उत्तर चुने:

- i) कथन (अ) सही है, किन्तु (ब) गलत है।
- ii) कथन (अ) गलत है, किन्तु (ब) सही है।
- iii) कथन (अ) और कथन (ब) दोनो सही है।
- iv) कथन (अ) और कथन (ब) दोनो गलत है ।

8. सही कथन को चुनिए।

- क. राग मालकौंस मे स्वर 'रे प' वर्जित है।
- ख. राग बागेश्री का वादी स्वर 'ध' है।
- ग. राग भैरव प्रातः कालीन सन्धि प्रकाश राग है।
- घ. झपताल के तीन विभाग है।
- i) क और ख
- ii) क और ग
- iii) ख और ग
- iv) ख और घ

9. अलंकार की परिभाषा लिखिए एवं एक अलंकार आरोह अवरोह सहित लिखिए।

**अथवा**

रूपक ताल के एक आवर्तन की दुगुन लिखिए।

10. तानपुरे का नामांकित चित्र उसके अंगों के नाम सहित बनाइए।

**अथवा**

गमक किसे कहते हैं? गमक के कुछ प्रकार का वर्णन कीजिए।

11. राग बागेश्री का विस्तार 50 स्वरों तक कीजिए।

**अथवा**

आलाप किसे कहते हैं? आलाप के प्रकार का संक्षेप्त में वर्णन कीजिए।

12. राग भैरव की प्रमुख विशेषताओं का वर्णन कीजिए।

13. निम्नलिखित में से किन्हीं दो को परिभाषित कीजिए - कण, मीड, ग्राम, मुच्छर्णा

**अथवा**

सप्ताध्यायी किस ग्रंथ को कहते हैं वर्णन कीजिए।

14. अपने पाठ्यक्रम में से कोई भी एक राग के बड़े ख्याल की स्वरलिपि लिखिए।

**अथवा**

राग भैरव में छोटे ख्याल को स्वर लिपिबद्ध कीजिए।

15. हिंदुस्तानी संगीत के रागों के समय सिद्धांत के आधार पर किए गए वर्गीकरण को 'पूर्वांग' व 'उत्तरांग' का क्या महत्त्व है? व्याख्या कीजिए।

**अथवा**

झपताल में ठाह, दुगुन, एवं तिगुन को ताल लिपिबद्ध कीजिए।





# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 2 Hours

Subject - Odissi Dance  
Maximum Marks - 30

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**Total Marks: 30** General instructions:

General Instructions:

1. The Question Paper contains three sections: A, B and C.
2. Section A has 8 questions. All questions are compulsory.
3. Section B has 8 questions. Attempt any 5 questions.
4. Section C has 3 questions. Attempt any 2 questions.
5. All questions carry equal marks.

### SECTION-A

- |    |   |   |
|----|---|---|
| 01 | Which instrument is commonly use in Chhau Dance?            | 1 |
| 02 | SatvikaAbhinaya deals with?                                 | 1 |
| 03 | In Odissi Dance which musical instrument controls rhythm?   | 1 |
| 04 | The term Angika deals with?                                 | 1 |
| 05 | Guru KelucharanMahapatra style of Odissi dance is based on? | 1 |
| 06 | Who were the ancient temple dancers in Odisha?              | 1 |
| 07 | Who is the author of AbhinayaDarpan Text?                   | 1 |
| 08 | Sareikela Chhau dance belongs to which state?               | 1 |

### SECTION-B

- |    |  |   |
|----|--|---|
| 09 | Define the term Tala and Avartan.                                      | 2 |
| 10 | What do you know by the term Lokadharmi?                               | 2 |
| 11 | Briefly define the term Nritya?  | 2 |
| 12 | Name four musical instruments of Chhau dance.                          | 2 |
| 13 | Define the term Tandav?  | 2 |
| 14 | Define the term Abhinaya?  | 2 |
| 15 | Write any one Tala with its calculation of Matra, Vibhag, and Chhanda. | 2 |
| 16 | Originally Chhau dance form belongs to which state?                    | 2 |

### SECTION-C

- |    |  |   |
|----|--|---|
| 19 | Write about the introduction of the text AbhinayaChandrika and what is mainly described in the Text? | 6 |
| 20 | Write short biography about Guru PankajaCharan Das?  | 6 |
| 21 | Define the terms: Nritya, Nritya and Natya.  | 6 |
-



# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 3 Hours

Subject - Physical Education  
Maximum Marks - 70

### GENERAL INSTRUCTIONS:-

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

### SECTION-A

- Publication of rules and regulations should be done \_\_\_\_\_. (1)
  - Pre event
  - During event
  - Post event
  - Any time during the event
- Minimum duration of activity should be \_\_\_\_\_ per week at vigorous intensity in adult above 65 years of age. (1)
  - 75 minutes
  - 150 minutes
  - 300 minutes
  - 450 minutes
- Lordosis is also known as \_\_\_\_\_. (1)
  - Kyphotic
  - Lordotic
  - Sway back
  - Skolios
- Which asana is of side twist pose? (1)
  - Shavasana
  - Chakrasana
  - Ardha matseyendrasana
  - Parvatasana

5. Which glands secrete the hormone insulin, the lack of which is associated with diabetes? (1)  
(a) Endocrine glands  
(b) Pituitary  
(c) Pancreas  
(d) Hypothalamus
6. In which of the following food groups "Sugar and Jaggery" come under? (1)  
(a) Protective or regulatory food  
(b) Energy giving food  
(c) Body building food  
(d) Immunity booster food
7. Which of the following is the water soluble vitamin? (1)  
(a) Vitamin A  
(b) Vitamin B  
(c) vitamin D  
(d) Vitamin K
8. What is the weight of dumbbell for men in arm curl of Rikili and Jones test? (1)  
(a) 5 pounds  
(b) 6 pounds  
(c) 8 pounds  
(d) 10 pounds
9. Push ups is an example of which lever? (1)  
(a) 1<sup>st</sup> class  
(b) 2<sup>nd</sup> class  
(c) 3<sup>rd</sup> class  
(d) none of these
10. Johnson methny test battery does not consist of \_\_\_\_\_ motor. (1)  
(a) Front roll  
(b) Back roll  
(c) Side roll  
(d) Jumping full turns
11. National sports day is celebrated on \_\_\_\_\_. (1)  
(a) 9<sup>th</sup> august  
(b) 19<sup>th</sup> august  
(c) 28<sup>th</sup> august  
(d) 29<sup>th</sup> august
12. Which one of the following methods is not used for preparing fixtures in league or round robin tournament? (1)  
(a) Staircase method  
(b) Cyclic method  
(c) Combination method  
(d) Tabular method

13. Lateral curve of the spine is known as \_\_\_\_\_. (1)  
(a) Kyphosis  
(b) Scoliosis  
(c) Lordosis  
(d) Knock-knees
14. BMI between 25.0-29.9 is \_\_\_\_\_. (1)  
(a) Underweight  
(b) Normal weight  
(c) Overweight  
(d) Obesity class 1
15. Which of the asana is for relaxation? (1)  
(a) Makrasana  
(b) Bhadrasana  
(c) Ardh-chakrasana  
(d) All of the above
16. Infrequent menstruation is known as :- (1)  
(a) Metrorrhagia  
(b) Oligomenorrhoea  
(c) Polymenorrhea  
(d) Menorrhagia
17. Which of the following tournament helps to save time:- (1)  
(a) Knock-out tournament  
(b) League tournament  
(c) Combination tournament  
(d) Round robin tournament
18. How many byes will be given if 29 teams are participating in knock-out tournament? (1)  
(a) 1  
(b) 2  
(c) 3  
(d) 4

#### **SECTION-B**

19. Explain the importance of fluid intake during a competition? (2)
20. Write any four benefits of Ardha Halasana? (2)
21. What is menstrual dysfunction? Write in brief. (2)
22. Write in brief the cause and remedies of Knock-knees? (2)
23. Write about the objectives of Intramural tournaments? (2)
24. Explain the role of marketing committee during the event? (2)

### SECTION-C

25. Write down the procedure and contraindications of Gomukhasana? (3)
26. Briefly explain the function of Staffing and Controlling in sports event management? (3)
27. Write down physical activities exercise guidelines for under 5 yrs. of age? (3)
28. Define Non- nutritive components of diet? (3)
29. Explain the procedure of Sit and Reach Test? (3)
30. With the help of suitable examples, discuss the application of Newton's laws of motion in sports. (3)

### SECTION-D

31. During the gymnastics practice, Zoya was finding it difficult to maintain her balance on the balancing beam. Her coach tried to explain to her about basic principles of equilibrium? (4)

According to the principles of equilibrium, centre of gravity plays a very important role

1. The nearer the centre of gravity to the centre of the base of support the more will be the \_\_\_\_\_.
  2. The position of the centre of gravity changes depending upon the \_\_\_\_\_.
  3. The sum of all the Vertical and Horizontal forces acting on the body must be \_\_\_\_\_.
  4. Centre of gravity is the average location of an objects \_\_\_\_\_.
- 
32. XYZ school is conducting an Invitation Tournament in which 25 teams have sent their entries. Matches have to be conducted on a knock-out basis. (4)
    1. How many total matches will be played?
    2. How many matches will be played in the first round of the tournament?
    3. How many rounds will be played?
    4. Which team will get 4<sup>th</sup> bye of the tournament?
  33. Mr. Sandeep aged 65 years worked as a civil engineer in a construction company. He had to walk and climb a lot as a part of his job. After retirement, he settled with his son spending time with his grand children. Now a days, he is experiencing difficulty in doing certain chores which involve physical movement. (4)
    1. Which of the following test would you recommend to check mr. Sandeep fitness?
      - (a) Harvard step test
      - (b) Rikili and Jones test
      - (c) AAPHER test
      - (d) Rockport test
    2. How many series of test are there in prescribed fitness test for Mr. Sandeep?
      - (a) 8
      - (b) 6
      - (c) 5
      - (d) 4

3. Chair sit and reach test is done to check\_\_\_\_\_.

- (a) Agility
- (b) Speed
- (c) Flexibility
- (d) Strength

4. Pick the odd one: -

- (a) arm curl test
- (b) Chair stand test
- (c) 6 minute walk test
- (d) Partial curl up

### **SECTION-E**

- 34. What is Friction? Explain the various types of Friction with example. (5)
  - 35. Explain Harvad step test in detail? (5)
  - 36. Draw a Tabular fixture of 13 teams mentioning all the steps involved. (5)
  - 37. Explain Lordosis and Flatfoot, write its causes and remedies in detail. (5)
-



# DELHI PUBLIC SCHOOL

SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 3 Hours

Subject - Physics  
Maximum Marks-70

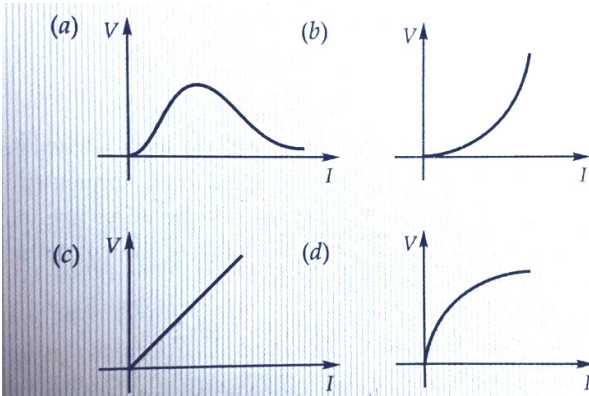
## General Instructions

1. There are 33 questions in all. All questions are compulsory.
2. This question paper has five sections: Section A, Section B, Section C, Section D and Section E.
3. All the sections are compulsory.
4. Section A contains sixteen questions, twelve MCQs and four and 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.
5. There is no overall choice. However, an internal choice has been provided in one question in Section B, one question in Section C, one question in each CBQ in Section D and all three questions in Section E. You have to attempt only one of the choices in such questions.
6. Use of calculators is not allowed.

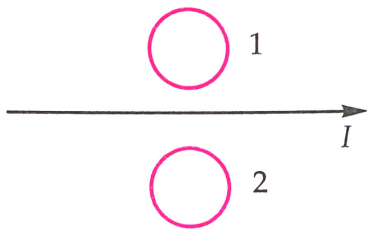
## SECTION - A

1. An electric charge  $q$  is placed at one of the corners of a cube of side  $a$ . The electric flux on one of its faces will be :-
  - (a)  $\frac{q}{a\epsilon_0}$
  - (b)  $\frac{q}{\epsilon_0 a^2}$
  - (c)  $\frac{q}{4\pi\epsilon_0 a^2}$
  - (d)  $\frac{q}{24\epsilon_0}$
2. A parallel plate air capacitor is charged to a potential difference of  $V$  volt. After disconnecting the charging battery, the distance between the plates of the capacitor is increased using an insulating handle. As a result, the potential difference between the plates
  - (a) decrease
  - (b) increases
  - (c) does not change
  - (d) becomes zero

3. If the drift velocity  $v_d$  in a material varies with the applied electric field  $E$  as  $v_d \propto \sqrt{E}$ , then the V-I graph for a wire made of such a material is best given by:-



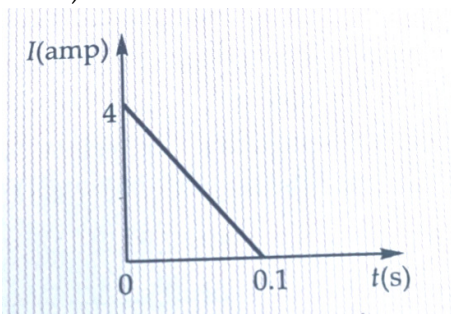
4. A moving coil galvanometer has a resistance of  $900\ \Omega$ . In order to send only 10% of the main current through this galvanometer, the resistance of the required shunt is:-  
 (a)  $0.9\ \Omega$   
 (b)  $90\ \Omega$   
 (c)  $100\ \Omega$   
 (d)  $405\ \Omega$
5. Two wires of the same length are shaped into a square and a circle. If they carry the same current, the ratio of the magnetic moments of the square to the circle is :-  
 (a)  $2:\pi$   
 (b)  $\pi:2$   
 (c)  $4:\pi$   
 (d)  $\pi:4$
6. What will be the directions of induced current in metal rings 1 and 2 when the current  $I$  in the wire is increasing steadily?



- (a) 1 - Clockwise, 2 - Anticlockwise  
 (b) 1 - Anticlockwise, 2 - Clockwise  
 (c) 1 - Clockwise, 2 - Clockwise  
 (d) 1 - Anticlockwise, 2 - Anticlockwise



7. In a coil of resistance  $10\ \Omega$ , the induced current developed by changing magnetic flux through it, is shown in the figure as a function of time. The magnitude of change in flux through the coil (in weber) is :-



- (a) 8  
(b) 6  
(c) 4  
(d) 2
8. The current and voltage in A.C. circuit are given by  
 $I = 5 \sin(100t - \frac{\pi}{2})$  amp  
 $V = 200 \sin(100t)$  V  
 The power dissipation in the circuit in one complete cycle is :-  
 (a) Zero  
 (b) 20 W  
 (c) 40 W  
 (d) 1000 W
9. In L-C-R series circuit, the capacitance is changed from C to 4 C. For the same resonant frequency, the inductance should be changed from L to :-  
 (a) 2L  
 (b)  $\frac{L}{4}$   
 (c)  $\frac{L}{2}$   
 (d) 4L
10. A ray of light passes through an equilateral glass prism, such that the angle of incidence is equal to the angle of emergence. If the angle of emergence is  $\frac{3}{4}$  times the angle of the prism, the refractive index of the material of the prism will be:-  
 (a) 1.51  
 (b) 1.414  
 (c) 1.33  
 (d) None of these
11. The oscillating magnetic field in a plane e.m wave is given by  
 $B_y = 5 \times 10^{-6} \sin 1000\pi(5x - 4 \times 10^8 t)$  tesla. The amplitude of the electric field will be :-  
 (a)  $15 \times 10^2 \text{ Vm}^{-1}$   
 (b)  $5 \times 10^{-6} \text{ Vm}^{-1}$   
 (c)  $16 \times 10^{12} \text{ Vm}^{-1}$   
 (d)  $4 \times 10^2 \text{ Vm}^{-1}$

12. The power of a convex lens:-

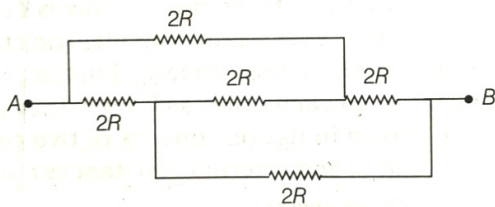
- (a) increases when the lens is dipped in water.
- (b) decreases when another convex lens is placed in contact with it.
- (c) increases when the wavelength of light, incident on it, decreases .
- (d) increases when the lens is cut into two identical plano – convex lenses.

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. Assertion and Reason are true and Reason is the correct explanation of Assertion.
- B. Assertion and Reason are true but Reason is NOT the correct explanation of Assertion.
- C. Assertion is true but Reason is false.
- D. Both Assertion and Reason are false.

13. **Assertion (A):** The equivalent resistance between points A and B in the given network is  $2R$ .

**Reason (R):** All the resistors are connected in parallel.



14. **Assertion (A):** A proton and an electron with the same momenta, enter a magnetic field at right angle to the lines of force. The radius of the paths followed by them will be the same.

**Reason (R):** An electron has lesser mass than proton.

15. **Assertion (A):** In water, the value of magnetic field decreases.

**Reason (R):** Water is a diamagnetic substance.

16. **Assertion (A):** If the frequency of the applied AC is doubled, the power factors of a series R-L circuit decreases.

**Reason (R):** Power factor of a series R-L circuit is given by  $\cos \phi = \frac{2R}{R^2 + \omega^2 L^2}$

### SECTION - B

17. Two similar balls each having mass  $m$  and charge  $q$  are hung from a rigid support by a silk thread of length  $l$ . Prove that in equilibrium, the separation ( $x$ ) between them is given by

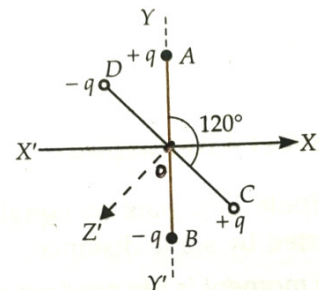
$$x = \left[ \frac{q^2 l}{2\pi\epsilon_0 m g} \right]^{1/3} \text{ when each thread makes a small angle } \theta \text{ with the vertical.}$$

**OR**

Two small identical electric dipoles AB and CD, each of dipole moment  $\vec{p}$  are kept at an angle of  $120^\circ$  to each other in an external electric field  $\vec{E}$  pointing along the X – axis as shown in the figure.

Find

- (i) the dipole moment of the arrangement
- (ii) the magnitude and direction of the net torque acting on it.



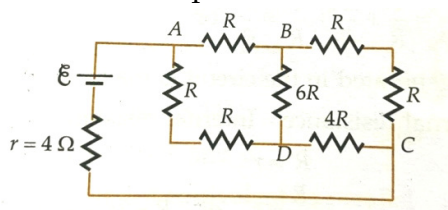
18. Derive expressions for (i) time period (ii) pitch for a charge entering obliquely in a uniform magnetic field.
19. Find the ratio of the potential differences that must be applied across the parallel and the series combination of two capacitors  $C_1$  and  $C_2$  with their capacitances in the ratio 1:2, so that the energy stored in the two cases, becomes the same.
20. If  $x$  stands for the magnetic susceptibility of a given material, identify the class of materials for which:-  
 (a)  $-1 \leq x < 0$   
 (b)  $0 < x < \epsilon$  ( $\epsilon$  = small positive number)  
 Also draw the pattern of magnetic field lines when they are placed in an external magnetic field.
21. Identify the e.m. waves, whose method of production, is associated with:-  
 (a) vibrations of atoms and molecules  
 (b) decay of atomic nuclei.  
 Also mention one use of each.

### SECTION - C

22. (a) Use Gauss's theorem to find the electric field intensity due to a uniformly charged infinitely large, thin plane sheet with surface charge density  $\sigma$ .  
 (b) An infinitely large, thin plane sheet has uniform surface charge density  $+\sigma$ . Obtain the work done in bringing a point charge  $q$  from infinity to a point at a perpendicular distance ' $r$ ' in front of the sheet.
23. (a) Define 'mobility' of charge carriers. Give its S.I. unit.  
 (b) Two aluminium wires have their lengths in the ratio 2:3 and radii in the ratio 1:3. These are connected in parallel across a battery of emf  $E$  and of negligible internal resistance. Find the ratio of drift velocities of the electrons in these two wires.

**OR**

A battery of internal resistance,  $r = 4\Omega$  is connected to the given network of resistances. What must be the value of  $R$ , so that the maximum power is delivered to the network? What is the maximum power?



24. Derive the mirror formula  $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$  (the symbols carry their usual meaning). Draw a relevant diagram for the same.
25. A bar magnet of magnetic moment  $6 \text{ J/T}$  is aligned at  $60^\circ$  with a uniform external magnetic field of  $0.44 \text{ T}$ . Calculate  
 (a) the work done in turning the magnet to align its magnetic moment (i) normal to the magnetic field (ii) opposite to the magnetic field  
 (b) the torque on the magnet in the final orientation in case (ii).

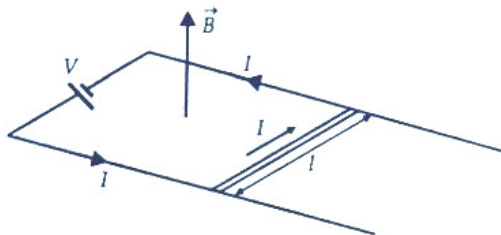
26. (a) Define 'Coefficient of mutual induction'. Give its S.I. unit.  
 (b) Derive an expression for the mutual inductance of two long co-axial solenoids [having the same length but different radii ( $r_1 > r_2$ ) and turn density] wound over one another, when current  $I_1$  is sent through the first solenoid.
27. (a) Two point charges  $+Q_1$  and  $-Q_2$  are placed  $r$  distance apart. Obtain the expression for the amount of work done to place a third charge  $Q_3$  at the mid-point of the line joining the two charges.  
 (b) At what distance from charge  $+Q_1$  on the line joining the two charges (in terms of  $Q_1, Q_2$  and  $r$ ) will this work done be zero?
28. (a) (i) What is the principle of a transformer?  
 (ii) Why is its core laminated?  
 (iii) Why is soft iron used as the core material?  
 (b) The primary coil of a transformer has 200 turns and the secondary has 1000 turns. If the power output from the secondary at 1000 V is 9 kW, calculate  
 (i) the primary voltage  
 (ii) the rate of heat loss in the primary coil if the resistance of primary coil is  $0.2 \Omega$  and the efficiency of the transformer is 90%.

#### SECTION D: CASE STUDY BASED QUESTIONS

**Question number 29 and 30 are Case study based questions. Read the following paragraphs and answer the questions that follow.**

#### **29. Force on a Current Carrying Conductor in a Magnetic Field.**

When a conductor carrying a current is placed in an external magnetic field, it experiences a mechanical force. A current is an assembly of moving charges and a magnetic field exerts a force on a moving charge. That is why a current-carrying conductor when placed in a magnetic field experiences a sideways force as the force experienced by the moving electrons is transmitted to the conductor as a whole. A conductor of length  $l$  carrying a current  $I$  held in a magnetic field  $\vec{B}$  at an angle  $\theta$  with it, experiences a force given by  $F = I l B \sin \theta$ . In vector form,  $\vec{F} = I (\vec{l} \times \vec{B})$ . The direction of  $\vec{F}$  is perpendicular to both  $\vec{l}$  and  $\vec{B}$  and is given by Fleming's left hand rule. A conducting bar with mass  $m$  and length  $l$  slides over horizontal rails that are connected to voltage source  $V$ . The source maintains a constant current  $I$  in the rails and bar, and a uniform magnetic field  $B$ , acting vertically upwards, acts in the region between the rails.



(i) Ignoring friction, air resistance and electrical resistance, the magnitude and direction of the net force on the conducting bar is

- (a)  $I l B$ , to the right
- (b)  $I l B$ , to the left
- (c)  $2 I l B$ , to the right
- (d)  $2 I l B$ , to the left

(ii) If the bar has mass  $m$ , the distance  $d$ , that the bar must move along the rails from rest to attain a speed  $v$ , will be

- (a)  $\frac{3v^2 m}{2IlB}$
- (b)  $\frac{5v^2 m}{2IlB}$
- (c)  $\frac{v^2 m}{IlB}$
- (d)  $\frac{v^2 m}{2IlB}$

(iii) A force acting on a conductor of length 5m, carrying a current of 8A kept perpendicular to a magnetic field of 1.5 T will be:-

- (a) 100 N
- (b) 60 N
- (c) 50 N
- (d) 75 N

(iv) A straight wire of mass 200 g and length 1.5m carries a current of 2A. It is suspended in mid air by a uniform horizontal magnetic field  $B$ . The magnitude of  $B$  (in tesla) is :-

(Assume  $g=9.8 \text{ m/s}^2$ )

- (a) 2
- (b) 1.5
- (c) 0.55
- (d) 0.65

OR

(iv) A wire of length  $l$  carries a current  $i$  along  $X - \text{axis}$ . A magnetic field given by

$B = B_0(\hat{i} + \hat{j} + \hat{k})$  T exists. The magnitude of the magnetic force acting on the wire is:-

- (a)  $i l B_0$
- (b)  $\sqrt{3} i l B_0$
- (c)  $2i l B_0$
- (d)  $\sqrt{2} i l B_0$

### 30. Inductance

When a current passing through a coil changes, the magnetic flux linked with the coil changes. As a result an emf is induced in the coil. This phenomenon is called self-induction. At any instant the flux  $N\Phi$  linked with the  $N$  turns of the coil is proportional to the current  $I$  through the coil i.e.,  $N\Phi \propto I$  or  $N\Phi = LI$ . The proportionality constant  $L$  is called self-inductance or simply inductance. Inductance is the ratio of flux-linkage to the current. It is equal to  $N\Phi/I$ . As per Lenz's law, the induced emf opposes the change of current. So inductance  $L$  is a measure of the inertia of the coil against the change of current through it. In contrast to it, a resistor  $R$

opposes the flow of current  $I$  through a circuit. A solenoid made from a thick wire has a negligible resistance but a sufficiently large inductance. Such an element is called an ideal inductor. Inductance of a coil depends on the geometry of the coil, number of turns in the coil and the permeability of the medium inside the coil.

(i) The dimensional formula of self-inductance of a coil is :-

- (a)  $[ML^2T^{-2}A^{-2}]$
- (b)  $[ML^{-2}T^2A^{-2}]$
- (c)  $[ML^2T^{-2}A^2]$
- (d)  $[ML^{-2}T^{-2}A^2]$

(ii) If both - the number of turns and the length of an inductor are doubled, keeping other factors constant, its self inductance will be:-

- (a) unaffected
- (b) doubled
- (c) halved
- (d) quadrupled

(iii) An iron - cored solenoid has self inductance 2.8 H. When the core is removed, the self inductance becomes 2 mH. What is the relative permeability of the core?

- (a) 1.40
- (b) 2.80
- (c) 1400
- (d) 2800

(iv) In a coil of self inductance 5 H, the rate of change of current is  $2 \text{ As}^{-1}$ . The emf induced in the coil will be

- (a)  $-5\text{V}$
- (b)  $5\text{V}$
- (c)  $-10 \text{ V}$
- (d)  $10 \text{ V}$

**OR**

(iv) A coil of 100 turns carries a current of 5mA and creates a magnetic flux of  $10^{-5}$  weber. The self inductance is:-

- (a) 0.2 mH
- (b) 2.0 mH
- (c) 0.02 mH
- (d) None of these

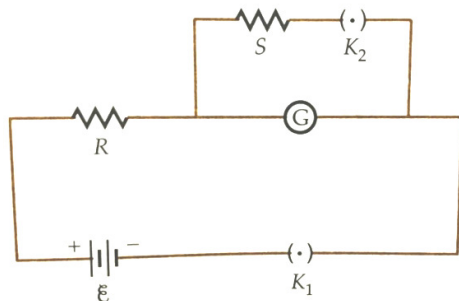
### **SECTION - E**

31. (a) With the help of a labelled diagram, explain the principle and working of a moving coil galvanometer. Show that the deflection produced in the galvanometer coil is directly proportional to the current flowing through it.

(b) "Increasing the current sensitivity of a galvanometer does not necessarily increase its voltage sensitivity." Justify.

OR

- (a) The current flowing in a galvanometer G when the key  $K_2$  is open, is  $I$ . On closing the key  $K_2$ , the current in the galvanometer becomes  $\frac{I}{n}$  where  $n$  is an integer. Obtain an expression for the resistance  $R_g$  of the galvanometer in terms of  $R$ ,  $S$  and  $n$ .



- (b) A galvanometer can be converted into a voltmeter of a certain range by connecting a resistance of  $980\ \Omega$  in series with it. When the resistance of  $470\ \Omega$  is connected in series, the range is halved. Find the resistance of the galvanometer.
32. (a) Obtain an expression for the average power consumed in a series L-C-R circuit connected to an A.C. source for which the phase difference between the voltage and current in the circuit is  $\phi$ .
- (b) An alternating voltage and the corresponding current in a circuit is given by:-  
 $E = 110 \sin(\omega t + \pi/6)$  and  $I = 5 \sin(\omega t - \pi/6)$  respectively. Find the impedance and the average power dissipation in it.

OR

- (a) Define root mean square value of current ( $I_{\text{rms}}$ ). Derive an expression for  $I_{\text{rms}}$ .
- (b) An a.c. source of voltage  $E = E_0 \sin \omega t$  is connected to a resistance, a capacitor and an inductor in series. Draw a phasor diagram for a predominantly capacitive L-C-R series circuit. Also obtain the impedance of the circuit.
33. (a) Using the relation for refraction at spherical surfaces and an appropriate ray diagram, deduce Lens-Maker's formula.
- (b) A converging lens of refractive index 1.5 has a power of 10 D. When it is completely immersed in a liquid, it behaves as a diverging lens of focal length 50 cm. Find the refractive index of the liquid.

OR

- (a) The distance between an object and a screen is  $D$ . A convex lens of focal length  $f$  is placed between the object and the screen. Prove that in order to obtain the image of the object on the screen, the minimum value of  $D$  should be  $4f$ .
- (b) With the help of a ray diagram, show how an equilateral prism can deviate a light ray by  $60^\circ$  [Given - Critical angle at glass-air interface is  $42^\circ$ ].



# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

### HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 3 Hours

Subject - Psychology  
Maximum Marks - 70

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#### General Instructions:

- i. All questions are compulsory except where internal choice has been given.
  - ii. Question Nos. 1-15 in Section A carry 1 mark each.
  - iii. Question Nos. 16-19 in Section B are Very Short Answer Type-I questions carrying 2 marks each. Answer to each question should not exceed 30 words.
  - iv. Question Nos. 22-24 in Section C are Short Answer Questions Type- II carrying 3 marks each. Answer to each question should not exceed 60 words.
  - v. Question Nos. 25-28 in Section D are Long Answer Type I questions carrying 4 marks each. Answer to each question should not exceed 120 words.
  - vi. Question No. 29-30 in Section E is a Long Answer Type II question carrying 6 marks. Answer to this question should not exceed 200 words.
  - vii. Question No. 31 in Section F will be a case based question.
- 

#### SECTION A

1. Sangita is high on critical thinking and can manipulate symbols to solve numerical problems. She is also high on the ability to understand one's own feelings, motives and desires. Which of the following intelligences are displayed by Sangeeta? [1]
  - i. Spatial
  - ii. Logical-mathematical
  - iii. Interpersonal
  - iv. Intrapersonal
  - a. i and ii
  - b. ii and iii
  - c. i and iii
  - d. ii and iv
2. Ryan believes that he is very good at football. Therefore, he has a high \_\_\_ as far as sports is concerned. [1]
  - a. Self-esteem
  - b. Self-efficacy
  - c. Self-motivation
  - d. Self-control
3. According to the behaviourist, personality of an individual is the result of \_\_\_. [1]
  - a. Unconscious motives and conflicts
  - b. Response of an individual to the environment
  - c. Early childhood experiences
  - d. A relationship of the individual to her/his environment



4. Which of the following would a humanistic psychologist not use to explain an individual's behaviour? [1]
- Innately good
  - Goal-directed and adaptive
  - Self-actualised
  - Balance among three competing forces
5. Which of the following are the dimensions of stress? [1]
- Intensity
  - Duration
  - Predictability
  - Vulnerability
- i,ii and iv
  - i, iii and iv
  - ii,iii and iv
  - i,ii and iii
6. Imran feels disappointed when he is not able to do every thing perfectly, leading him to push him self to achieve unrealistically high standards. Identify the cause of his stress. [1]
- Social Pressure
  - Conflict
  - Frustration
  - Internal Pressure
7. Sonali was questioned by her senior when her performance started to decline. She Admitted that she was not eating regularly and her sleep was disturbed. Moreover, she could not concentrate on work and felt over burdened. Identify the effects of stress being indicated here. [1]
- Emotional
  - Behavioural
  - Cognitive
  - Physiological
- i and ii
  - ii and iii
  - iii and iv
  - i and iv
8. Which of the following is / are true about psychological disorders in the middle ages? [1]
- Demonology and superstition were reused as explanations of psychological disorders.
- Mental anguish and conflict were reconsidered as reasons for psychological disorders.
  - Disturbed interpersonal relationship emphasised to explain mental disorders.
  - There was emphasis on deinstitutionalization for people with psychological disorders.
- Only i is true.
  - i and ii are true.
  - Only iii is true.
  - ii and iv are true.

9. While paying bills, Sanjana was suddenly overwhelmed by anxiety. Her heart pounded, she felt like she couldn't breathe, and she became dizzy. This was most likely to be \_\_\_\_\_. [1]
- A panic attack
  - A dissociative episode
  - A manic episode
  - A generalized anxiety episode
10. Brijesh, an accountant, went on a work trip and never returned home. Years later, he was Found by a friend in another city, where he was working as a labourer. He was living with An identity and had no memory of his past. Brijesh's symptoms are indicative of \_\_\_\_\_. [1]
- Dissociative fugue
  - Dissociative identity disorder
  - Schizophrenia
  - Depersonalisation
11. In the following question, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice. [1]
- Assertion (A):** The principle of reciprocal inhibition states that the presence of two mutually opposing forces at the same time will lead to the stronger force inhibiting the weaker one.
- Reason(R):** The principle of reciprocal inhibition is a procedure where in the client learns to behave in a certain way by observing the behaviour of the therapist.
- Both Assertion (A) and Reason(R) are true, and Reason(R) is the correct explanation of Assertion (A).
  - Both Assertion(A) and Reason(R) are true, but Reason(R) is not the correct Explanation of Assertion (A).
  - Assertion (A) is true, but Reason(R) is false.
  - Assertion (A) is false, but Reason(R) is true.
12. Amit throws temper tantrums every time he goes to the market with his parents. He insists that they buy him a new toy every time. Identify the most suitable behavioural technique to modify this unwanted behaviour. [1]
- Token economy
  - Aversive conditioning
  - Differential reinforcement
  - Systematic desensitisation
13. What is the chief benefit to the client in cognitive therapy? [1]
- Emotional insight is gained and the client is able to change his emotions towards The conflict.
  - The client is able to change maladaptive behavior to adaptive ones.
  - The client is able to replace irrational thoughts with rational ones.
  - The client is able to achieve personal growth which leads to understanding oneself.

14. In the following question, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice. [1]

**Assertion (A):** We assign causes to the behaviours how in specific social situations. This process is called attribution.

**Reason (R):** We are also interested in why people behave in ways they do. Therefore, we assign a cause to a behaviour.

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

15. In the following question, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice. [1]

**Assertion (A):** Situation and circumstances in which one is placed influence one's behaviour.

**Reason(R):** The situational influences are so powerful that individuals with similar personality traits respond to them in almost the same ways.

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

### SECTION B

16. Ivaan experiences distress and is constantly complaining of snakes crawling inside his stomach. Identify the disorder and the symptom that Ivaan is experiencing. Explain any one negative symptom of this disorder . [2]
17. Fatima communicates her feelings and views clearly with confidence .She could say 'no' To are questorstate an opinion without being self-conscious. Which life skill is she using? Suggest two more life skills that can help Fatima meet the challenges of life successfully. [2]

**OR**

Resham has been overwhelmed by the quantum of work in her office. She has been advised some stress management techniques by her counsellor. What are the two techniques that you think would be helpful for her to manage stress?

18. State any two ethical standards that need to be practiced by professional psychotherapists. [2]
19. What is IQ? How do psychologists classify people on the basis of their IQ scores? [2]

**OR**

Write a short note on behavioural approach.

### SECTION - C

20. Kirti is of average intelligence but is high on ability to appraise, express and regulate her emotions. Identify the intelligence that she exhibits and why it is receiving so much attention these days. Suggest some ways to enhance this kind of intelligence of students in schools. [3]
21. Explain major depressive disorder. State the factors which predispose an individual to depression. [3]
22. Describe Hans Selye's General Adaptation Syndrome (GAS). [3]
23. Describe the importance of the therapeutic relationship in the process of psychotherapy. [3]
24. Raghu & Ram are twins who were separated in childhood. However, they both show a considerable similarity in their IQ level. Explain their similarities? [3]

### SECTION - D

25. Explain the role of assessment in understanding psychological attributes. Describe the key Features of any two methods used for psychological assessment. [4]
- OR**
- Explain the term intelligence. Describe the PASS model of intelligence.
26. Mother Teresa believed that she had a mission to fulfill and did what came natural to her, [4]  
Loving others and serving them. Identify the trait being referred to here by Gordon Allport and how it affects a person's behaviour. Distinguish it from other traits given by him.
27. Shahid showed a reduction in symptoms after he received treatment for schizophrenia. He Was sent to the rehabilitation centre to improve his quality of life. What steps would be Taken in the rehabilitation centre to help him become a productive member of the community? Explain. [4]
- OR**
- Mukesh was given therapy that encouraged him to seek personal growth and actualize his potential. Based on these principles, explain the therapy that is being applied here.
28. How is aptitude & interest different from intelligence? How is aptitude measured?

### SECTION-E

29. Describe Freud's psychosexual stages of personality development. [6]
- OR**
- Explain the characteristics of indirect techniques that are used to assess personality. Describe any two such tests.
30. Individuals differ in the coping strategies that they use to deal with stressful situations. Justify this statement highlighting various coping strategies. [6]

## SECTION - F

### 31. Read the case and answer the questions that follow.

[4]

Anna is a 28-years-old Caucasian woman who has struggled with alcohol use for most of her teenage and young adult life. She began drinking in high school, at age 15, and dropped out of college partway through her first year because she was missing so many classes due to alcohol use. She has attempted to go back to school twice since then but has been unsuccessful each time due to relapses. Anna reports multiple attempts to stop drinking, but has only been able to maintain sobriety for 2-4 weeks at a time. Whenever she tries to stop drinking, she gets nauseous, shaky, and disoriented. Within the last 4 months, she has withdrawn from her friends, feels sad almost every day, and has frequent suicidal ideation. Her appetite has decreased, but her alcohol use has continued to increase, and she is currently consuming approximately half a 'fifth' of vodka per day. She has frequent arguments with her parents, who are now threatening to cut her off financially because she spends most of her rent money on alcohol. She "can't stop thinking about my next drink," and reports feelings of guilt and worthlessness over being unable to stop drinking.

(i) Identify the psychological disorder with which Anna is suffering from

- a. Bulimia Nervosa
- b. Depression
- c. Bipolar Disorder
- d. Panic Disorder

(ii) Which of the following symptoms suggest that Anna is suffering from Depression?

- a. Suicidal ideation
- b. Loss of appetite
- c. Feeling of guilt and worthlessness
- d. All of the above

(iii) Along with depression, Anna also has

- a. Alcohol use disorder
- b. Post-Traumatic Stress Disorder
- c. Schizophrenia
- d. Social Anxiety Disorder

(iv) Which of the following is not among factors predisposing towards depression?

- a. Genetic make-up
- b. Age
- c. Gender
- d. Sleep problem



# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII

Time - 3 Hours

Subject - Sociology

Maximum Marks-80

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### General Instructions

1. The question paper is divided into four sections.
  2. There are 35 questions in all. All questions are compulsory.
  3. Section A includes question No. 1-16. These are objective type questions.
  4. Section B includes question No. 17-25. These are very short answer type questions carrying 2 marks each. Answer to each question should not exceed 30 words.
  5. Section C includes question No. 26-32. These are short answer type questions carrying 4 marks each. Answer to each question should not exceed 80 words. Question no. 26 and 27 are case based questions with 4 parts each carrying 1 mark, making the questions of 4 marks each.
  6. Section D includes question No. 33-35. They are long answer type questions carrying 6 marks each. Question No. 33 is to be answered on the basis of data provided. Answer to each question should not exceed 200 words each. Question no 35 is to be answered with the help of the passage given.
- 

### SECTION A

1. Larger proportion of persons in working age group relative to the population is termed as
  - A. dividend of population
  - B. age structure of the population
  - C. population statistics
  - D. none of these
2. **Assertion (A):** Demography is the systematic study of the population.  
**Reason (R):** Demographic data is important for the planning and implementation of state policies, especially those for economic development and general public welfare.
  - 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.
3. The person who is refused a job because of his/her caste may be told that he/she was less qualified than others and the selection was done purely on merit. This is an example of-
  - A. Discrimination
  - B. Social stratification
  - C. Egalitarianism
  - D. Stereotype

4. Person from a well off family can afford expensive higher education someone with influential relatives and friends may – through access to good advice, recommendations or information - manage to get a well paid job.

Which of the following is true in the given context?

**Codes**

- i) There are multiple forms of capital.
- ii) Different forms of capital cannot be converted into the other.
- iii) The forms of capital overlap.

- A. i is false.
- B. i and ii are true.
- C. i and iii are true.
- D. i, ii and iii are true.

5. **Assertion (A):** Schedule caste is a term used to refer to those castes which had a large population and were granted land rights by the partial land reforms effected after Independence.

**Reason (R):** Intermediate castes became the dominant castes in the countryside and played a decisive role in regional politics and the agrarian economy.

- 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.

6. .... passed a law that recognised SC's and ST's.

- A. The Scheduled Tribes (Prevention of Atrocities) Act, 2005
- B. The Untouchability Offences Act of 1955
- C. The Scheduled Castes (Prevention of Atrocities) Act, 1989
- D. The Government of India Act, 1935

7. **Assertion (A):** In most regions of India, women are usually excluded from ownership of land because of the prevailing patrilineal kinship system and mode of inheritance.

**Reason (R):** In reality, they only have limited rights and some access to land only as part of a household headed by a man.

- 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. Which of the following thinkers has called the **State** as a monopoly of statutory violence?

- A. Emile Durkheim
- B. Max Weber
- C. Karl Marx
- D. Mac Iver and Page

9. The aggressive political ideology which is associated with religion is called \_\_\_\_\_.

- A. Communalism
- B. Secularism
- C. Terrorism
- D. Casteism

10. During colonial rule, \_\_\_\_\_ was exported as a raw material from Calcutta to Britain.
- A. Cotton
  - B. Rice
  - C. Sugar
  - D. Jute
11. In 1698, ----- was established by the river Hoogly for defensive purposes, and a large open area was cleared around the fort for military engagements.
- A. Fort Laurence
  - B. Fort William
  - C. Fort Charnock
  - D. Fort Johnson
12. Changes occur in social relations and social institutions are called ....
- A. Cultural change
  - B. Structural change
  - C. Constructional change
  - D. Political change
13. Who is called the father of modern India in the following?
- A. Raja Ram Mohan Roy
  - B. Ishwar Chandra Vidyasagar
  - C. Keshav Chandra Sen
  - D. Dayanand Saraswati
14. **Assertion (A):** Secularization is not closely associated with modernization and Westernization.
- Reason (R):** Religious fanatics are found in Western countries.
- 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.
15. The 19<sup>th</sup> century reforms initiated a period of ----- .
- A. Questioning
  - B. Reinterpretation
  - C. Intellectual and social growth
  - D. All of the above
16. Which of the following is/ are the characteristics of agricultural labour?
- A. They own no land of their own
  - B. They work for others
  - C. They are often paid less wages i.e. below the statutory minimum wages
  - D. All of these

**OR**

..... are essentially the government's declared minimum procuring prices for agricultural products for a given year.

- A. Subsidies
- B. Issue price
- C. Incentives
- D. Support price



## SECTION B

17. How endogamy can be held responsible for caste remained largely unaffected by modernization and change.

**OR**

Elaborate the two major sets of principles of caste system in India.

18. Is there any relationship between caste and economic inequality today? Elaborate.

19. Who are called OBC's?

**OR**

What do you understand by 'discrimination'?

20. In Indian nationalism, the dominant trend was marked by inclusive and democratic vision explained.

21. Describe the term 'Assimilation'.

**OR**

Highlight two common features of 'Ascriptive identity'.

22. Who are privileged minorities?

23. Examine the emergence of nationalism during colonial rule in India.

**OR**

How colonialism influenced the mobility of Indian people?

24. Is community identity an integral part of the formation of nation state? Explain.

**OR**

How is the outcome of vibrant Civil Society different from an Authoritarian state?

25. Establish the connection between Circulation of labour and Footloose labour.

## SECTION C

26. Describe the theory of 'Demographic Transition'. Why is the transition period associated with a population explosion?

27. Highlight the problems faced by the tribals in India.

28. The argument for tribe - caste distinction is based on cultural difference between Hindu mainstream and tribal society. State two key points of tribe-caste distinction.

**OR**

The institution of caste underwent major changes during colonial period. Explain.

29. State the declaration of the Karachi Session of the Indian National Congress which committed itself to women's equality. How far the status of women has improved in contemporary India? Give example to support your answer.

30. How did Industrialisation take place after independence in India.

31. What is meant by the term 'Regionalism'? What are the major factors of regionalism in India?

32. Explain the agrarian structure of rural society. Also examine the caste and class relationship that exists.

**OR**

Rural society structure was altered by agricultural development in the 1960's and 1970's Discuss.

## SECTION D

33.

TABLE 5: RURAL AND URBAN POPULATION				
Year	Population (Millions)		Percentage of Total Population	
	Rural	Urban	Rural	Urban
1901	213	26	89.2	10.8
1911	226	26	89.7	10.3
1921	223	28	88.8	11.2
1931	246	33	88.0	12.0
1941	275	44	86.1	13.9
1951	299	62	82.7	17.3
1961	360	79	82.0	18.0
1971	439	109	80.1	19.9
1981	524	159	76.7	23.3
1991	629	218	74.3	25.7
2001	743	286	72.2	27.8
2011	833	377	68.8	31.2

Source: <http://ayush.gov.in>

1. In absolute terms, what is the difference in urban Indian population between 1951 and 2011? [2]
2. Contribution of agriculture in GDP has fallen drastically. What is its share? Why? [1+1=2]
3. Mention the role of mass media for rural migration to cities. [2]

34. Give a detailed account of social consequences of Green Revolution.

OR

What is 'contract farming'? Mention its positive and negative impact.

35. Read the given passage and answer the questions that follow.

**(Race and Caste -A Cross Cultural Comparison.)**

Just like caste in India, race in South Africa stratifies society into a hierarchy. About one South African in seven is of European ancestry, yet South Africa's white minority holds the dominant share of power and wealth. Dutch traders settled in South Africa in the mid 17<sup>th</sup> century; early in the 19<sup>th</sup> century, their descendants were pushed inland by British colonization. At the beginning of the 20<sup>th</sup> century, the British gained control of what became the Union and then the Republic of South Africa.

To ensure their political control, the white European minority developed the policy of Apartheid or separation of the races. An informal practice for many years, apartheid became law in 1948 and was used to deny the black majority South African citizenship and ownership of land, and a formal voice in government. Every individual was classified by race and mixed marriages were prohibited. As a racial caste, blacks held low paying jobs, on average, they earned only  $\frac{1}{4}$  what whites did.

1. How do you relate caste system in India and racial discrimination practiced in South Africa. Explain your answer with similarities and differences. [3]
2. Exclusion, Humiliation - Subordination and exploitation are the three dimensions of untouchability. Explain with example. [3]



# DELHI PUBLIC SCHOOL

## SAIL TOWNSHIP, RANCHI

HALF YEARLY EXAMINATION (2024-25)

Class - XII  
Time - 3 Hours

Subject - Mathematics (Applied)  
Maximum Marks - 80

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### General Instructions:

1. This Question paper contains - **five sections A, B, C, D and E**. Each section is compulsory. However, there are internal choices in some questions.
  2. **Section A** has 18 MCQ's and 02 Assertion-Reason based questions of 1 mark each.
  3. **Section B** has 5 Very Short Answer (VSA)-type questions of 2 marks each.
  4. **Section C** has 6 Short Answer (SA)-type questions of 3 marks each.
  5. **Section D** has 4 Long Answer (LA)-type questions of 5 marks each.
  6. **Section E** has 3 source based/case based/passage based/integrated units of assessment (4 marks each) with sub parts.
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### SECTION-A (1X20=20 MARKS)

1. The value of  $3^{16} \pmod{4}$  is
  - a) 2
  - b) 3
  - c) 1
  - d) 4
2. 600 gms of jaggery syrup has 40% jaggery in it. How much jaggery should be added to make it 50% in the syrup?
  - a) 120
  - b) 130
  - c) 150
  - d) 140
3. If  $a$  and  $b$  are positive real numbers such that  $ab = 1$ , then the least value of  $(1+a)(1+b)$  is
  - a) 3
  - b) 4
  - c) 2
  - d) 1
4. The pairs of consecutive odd positive integers, both of which are smaller than 10, such that their sum is more than 11 are
  - a) (5,7), (7,9)
  - b) (3,5), (5,7)
  - c) (7,9), (9,11)
  - d) None of these

5. If  $A$  is a square matrix such that  $A^2 = I$ , then the simplified value of  $(A - I)^3 + (A + I)^3 - 7A$  is
- $I$
  - $A$
  - $7A$
  - Cannot be determined
6. A matrix which is both symmetric as well as skew-symmetric is a
- Identity matrix
  - Row matrix
  - Null matrix
  - None of these
7. The values of  $x$  for which the value of determinant  $\begin{vmatrix} 1 & -2 & 5 \\ 2 & x & -1 \\ 0 & 4 & 2x \end{vmatrix}$  is 86 are
- 7, 3
  - 2, -3
  - 3, 7
  - 7, 3
8. If  $A$  is an invertible matrix of order 3 and  $|A| = 5$ , then the value of  $|adj A|$  is
- 5
  - 25
  - 125
  - None of these
9. The side of an equilateral triangle is increasing at the rate of 2 cm/sec. At what rate is its area increasing when the side of the triangle is 20 cm?
- 50 cm<sup>2</sup>/sec
  - 20 cm<sup>2</sup>/ sec
  - 10 cm<sup>2</sup>/ sec
  - None of these
10. The least value of ' $a$ ' such that the function  $f(x) = x^2 + ax + 1$  is increasing on  $[1, 2]$  is
- 1
  - 4
  - 2
  - 2
11. If the mean of a binomial distribution is 81, then the interval in which the standard deviation of the binomial distribution lies is
- (0, 5)
  - (0, 9)
  - (3, 9)
  - (9, 0)
12. Given that the mean of a normal variate  $X$  is 12 and standard deviation is 4, then the Z-score of data point 20 is
- 3
  - 4
  - 2
  - 1

13. Rs. 250,000 cash is equivalent to a perpetuity of Rs. 7,500 payable at the end of each quarter. The rate of interest convertible quarterly is
- 5%
  - 4%
  - 2%
  - 12%
14. Mira takes a loan of Rs. 300,000 at an interest of 10% compounded annually for a period of 3 years. The EMI using flat rate method is
- Rs.1024.56
  - Rs. 1235.21
  - Rs. 5432.83
  - None of these
15. If  $x = a \cos(nt) - b \sin(nt)$  and  $\left(\frac{d^2x}{dt^2}\right) = \lambda x$ , then the value of  $\lambda$  is
- $n$
  - $n^2$
  - $n^3$
  - None of these
16. The maximum value of  $Z = 3x + 4y$  subject to the constraints  $x + y \leq 40$ ,  $x + 2y \leq 60$ ,  $x, y \geq 0$  is
- 110
  - 130
  - 120
  - none of these
17. A machine costing Rs. 50,000 has a useful life of 4 years. The estimated scrap value is Rs. 10,000. If we use the straight line method, then the annual depreciation is
- Rs.5000
  - Rs. 10,000
  - Rs.13000
  - Rs.9000
18. The effective rate that is equivalent to a nominal rate of 8% compounded semi-annually is
- 8.19%
  - 8.13%
  - 8.16%
  - 8.12%

### ASSERTION - REASONING TYPE QUESTIONS

Statement I is called Assertion (A) and Statement II is called Reason (R). Read the given statements carefully and choose the correct answer from the options given below:

- Both the Statements are true and Statement II is the correct explanation of Statement I.
  - Both the Statements are true and Statement II is not the correct explanation of Statement I.
  - Statement I is true, Statement II is false.
  - Statement I is false, Statement II is true.
19. The corner points of the feasible region for an L.P.P. are  $(60,0)$ ,  $(120, 0)$ ,  $(60,30)$  and  $(40,20)$ . The objective function  $Z = ax + by$ ,  $a, b > 0$  has maximum value 600 at points  $(120,0)$  and  $(60,30)$ .  
Statement I : Minimum value of  $Z = 300$   
Statement II :  $a = 5, b = 10$

20. Suppose that  $x = t - t^4$ ,  $y = t^2 - t^3$ .

Statement I :  $\frac{dy}{dx}$  at (0,0) is equal to  $\frac{2}{3}$  or 1.

Statement II :  $\frac{dy}{dx} = \frac{\frac{dy}{dt}}{\frac{dx}{dt}}$ .

**SECTION B (2 X 5 =10 Marks)**

21. In a game, A can give 20 points to B, A can give 32 points to C and B can give 15 points to C. How many points make the game?

**OR**

The stream is flowing at the speed of 4 km/hr. If Ravi rows a certain distance upstream in 3.5 hours and returns to the same place in 1.5 hours, find the speed of Ravi's boat in still water.

22. Solve the inequality  $|3x-5| \geq 4$ . Also represent its solution on the number line.

23. If  $y = (a + bx) e^{cx}$ , prove that:  $y_2 - 2cy_1 + c^2y = 0$ .

**OR**

If  $f(x) = \frac{2x+1}{2x+3}$ , find  $f''(x)$ .

24. What sum of money is needed to invest now, so as to get Rs. 5000 at the beginning of every month forever, if the money is worth 6% per annum compounded monthly?

**OR**

A loan of Rs. 250000 at the interest rate of 6 % p.a. compounded monthly is to be amortized by equal payments at the end of each month for 5 years, find the size of each monthly payment and the principal outstanding at beginning of 40<sup>th</sup> month.  
( Given  $(1.005)^{60} = 1.3489$ ,  $(1.005)^{21} = 1.1104$  ).

25. Three pipes A, B and C can fill a tank together in 8 hours. After working at it together for 2 hours, B is closed and A and C can fill the remaining part in 9 hours. Find the time in which B alone can fill the tank.

**SECTION -C (3 X 6 = 18 Marks)**

26. Find the remainder when  $987 + 876 + 765 + 654 + 543 + 432 + 321 + 210$  is divided by 6.

27. If the equations  $x = cy + bz$ ,  $y = az + cx$ ,  $z = bx + ay$  are consistent, prove that:  $a^2 + b^2 + c^2 + 2abc = 1$ .

**OR**

Find the real value(s) of 'a' for which the system of equations  $x + ay = 0$ ,  $y + az = 0$ ,  $z + ax = 0$  has infinitely many solutions.

28. If  $e^y (x + 1) = 1$ , show that  $\left(\frac{d^2y}{dx^2}\right) = \left(\frac{dy}{dx}\right)^2$ .

29. Show that the curves  $x = y^2$  and  $xy = k$  cut orthogonally if  $8k^2 = 1$ .

**OR**

Find the intervals in which  $f(x) = (x + 2) e^{-x}$  is strictly increasing or decreasing.

30. In a normal distribution 31% of the articles are under 45 and 8% are over 64. Calculate the mean and standard deviation of the distribution.

**OR**

Two cards are drawn simultaneously from a well – shuffled deck of 52 cards. Find the mean and variance of the number of red cards.

31. Given that  $X_{2 \times n}$ ,  $Y_{3 \times k}$ ,  $Z_{2 \times p}$ ,  $W_{n \times 3}$  and  $P_{p \times k}$  are matrices of specified order. What are the conditions:  
 (a) for  $n$ ,  $k$  and  $p$  so that  $3PY + 2WY$  is defined?  
 (b) for the order of the matrix  $2X - 3Z$ ?

**SECTION -D ( 5 x 4 = 20 Marks )**

32. Discuss the consistency of the given system of equations. If consistent, solve them using Cramer's rule.

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

$$x - 2y + z = -2$$

$$5x - 5y + z = -2.$$

**OR**

The sum of three numbers is 20. If we multiply the first number by 2 and add the second number to the result and subtract the third number, we get 23. By adding second and third numbers to three times the first number, we get 46. Represent the above problem algebraically and use Matrix method to find the numbers from these equations.

33. Find a point on the curve  $y^2 = 2x$  which is nearest to the point (1,4).

**OR**

Find the equation of the normal to the curve  $x^2 = 4y$  which passes through the point (1,2). Also find the equation of the corresponding tangent.

34. If  $(x-a)^2 + (y-b)^2 = c^2$ , for some  $c > 0$ , prove that  $\frac{\left\{1 + \left(\frac{dy}{dx}\right)^2\right\}^{3/2}}{\left(\frac{d^2y}{dx^2}\right)}$  is a constant independent of 'a' and 'b'.

**OR**

If  $x = \frac{1}{2}(e^t + e^{-t})$ ,  $y = \frac{1}{2}(e^t - e^{-t})$ , show that  $y^2 \frac{d^2y}{dx^2} + x \frac{dy}{dx} - y = 0$ .

35. A factory manufactures tennis rackets and cricket bats. A tennis racket takes 1.5 hours of machine time and 3 hours of craftsmanship in its making while a cricket bat takes 3 hours of machine time and 1 hour of craftsmanship. In a day, the factory has the availability of not more than 42 hours of machine time and 24 hours of craftsmanship. If the profit on a racket and a bat is Rs. 20 and Rs.10 respectively, find the number of tennis rackets and cricket bats that the factory must manufacture to earn the maximum profit. Design a linear programming problem and solve it graphically.

### SECTION - E( 4 X 3 =12 Marks )

This section comprises 3 case study based questions of 4 marks each.

#### Case Study -1

36. The demand function for a certain product is represented by the equation :  $p = ax^2 + bx + c$ , where  $x$  is the number of units demanded and  $p$  is the price per unit.

**Based on the above information, answer the following questions:**

- a) Find the revenue function. [1]
- b) Find the marginal revenue. [1]
- c) Find the values of  $x$ , for which marginal revenue increases. [2]

**OR**

Find the values of  $x$ , for which marginal revenue decreases.

#### Case Study -2

37. There are 500 persons of age 55 years in a town. The chance that a person aged 55 years will die within next 5 years is 1%.

**Based on the above information, answer the following questions:**

- a) Find the probability that exactly 4 persons of age 55 years will die within next 5 years. [1]
- b) Find the probability that at most 3 persons of age 55 years will die within next 5 years. [1]
- c) Find the probability that at least 3 persons of age 55 years will die within next 5 years. [2]

**OR**

Find the probability that more than 3 persons of age 55 years will die in next 5 years.

#### Case Study -3

38. On his birthday, Ravi decided to donate some money to children of an orphanage home. If there were 8 children less, every one would have got Rs. 10 more. However, if there were 16 children more, every one would have got Rs. 10 less. Let the number of children be  $x$  and amount distributed by Ravi to each child be Rs.  $y$ .

**Based on the above information, answer the following questions:**

- a) Write the matrix equation representing the above information. [1]
- b) If  $A$  is the coefficient matrix of above situation, then what is  $\text{adj}(A)$ ? [1]
- c) Find the number of children and amount donated by Ravi. [2]

**OR**

If the coefficient matrix  $A$  satisfy the following matrix equation  $A^2 - kA + 20I = 0$ , find 'k'.

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