

SECTION A

(Each question carries 1 Mark)

- Q1. Without performing division, find the degree of quotient when $6x^3 - 5x^4 + 2x^2$ is divided by $3 - x^2$. 1
- Q2. Find square of 99 using identity. 1
- Q3. What is the sum of all interior angles of a regular pentagon. 1
- Q4. All the sides of a quadrilateral are equal and diagonals are not equal, what is the type of quadrilateral? 1
- Q5. Write two English alphabets having only one line of symmetry. 1
- Q6. What is the angle of rotation of a parallelogram? 1

SECTION B

(Each question carries 2 Marks)

- Q7. Factorise: $x^2 - 21x + 108$ 2
- Q8. Simplify: $\frac{1}{12} \left[\frac{36^{\frac{7}{2}} - 36^{\frac{9}{2}}}{36^{\frac{5}{2}}} \right]$. 2
- Q9. In what time ₹ 32000 will amount to ₹ 35280 at 5% p.a. compounded annually? 2
- Q10. Solve for x : $\frac{x - \frac{2}{5}}{x + \frac{2}{5}} = -3$. 2
- Q11. Show that the sum of interior angles of a quadrilateral is 4 right angles. 2
- Q12. The monthly income of a family is ₹ 14400. The monthly expenditure of the family on various items is as follows: 2

Item	Rent	Food	Clothing	Education	Savings
Expenditure (in ₹)	4000	5400	2800	1800	400

Make a table showing fractions and angles.

- Q13. (a) Simplify $\frac{\sqrt{0.0441}}{\sqrt{0.000441}}$ 3
 (b) How many non square numbers are there between 13^2 and 14^2 ?
- Q14. If $x + \frac{1}{x} = 9$, find the value of $x^2 + \frac{1}{x^2}$. 3
- Q15. The difference between the compound interest and simple interest on a certain sum of money at $6\frac{2}{3}\%$ per annum for 3 years is ₹ 46. Find the sum. 3

OR

Satish borrowed a sum of ₹ 163840 at 12.5% p.a. compounded annually. On the same day, he lent out the same money to Suresh at the same rate which was compounded half yearly. Find his gain after 2 years. 3

- Q16. Find the compound interest on ₹ 4096 at the rate of $6\frac{1}{4}\%$ per annum for 3 years compounded annually using unitary method. 3
- Q17. (a) Divide $6x^3 - 4x^2 + 8x^4 - 4$ by $\frac{2}{3}x$. 3
 (b) Divide $(p^2 - 5p - 6)$ by $(p + 1)$ using factor method.
- Q18. The difference between the ages of two persons is 10 years. Fifteen years ago, if the elder one was twice as old as the younger one, find their present ages. 3

OR

A purse has only one rupee and two rupee coins in it. If number of two-rupee coins is one third the number of one-rupee coins, find the number of 2-rupee coins if the purse has ₹ 115. 3

- Q19. Solve the equation: $\frac{0.5y + 4}{1.2y + 8} = \frac{5}{3}$. 3
- Q20. Construct a quadrilateral MNRS using ruler and compass with sides $MN = 5.5$ cm, $NR = 6$ cm, $RS = 6.5$ cm and diagonals $MR = 8$ cm, $NS = 7.5$ cm. 3

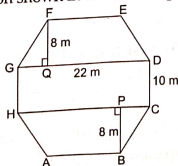
Alternate question for visually challenged students in lieu of Q: 20.

Two adjacent angles of a ||gm are in the ratio 2 : 3. Find the measure of all the angles of ||gm. 3

- Q21. A water tank is cylindrical in shape and the diameter of its base is 28 m. If it is 7 m deep, how many kilolitres of water can it hold? 3

OR

Find the area of regular octagon shown in the following figure. 3



- Q22. 17 cards numbered from 1, 2, 3,..... to 17 are put in a box and mixed thoroughly. One card is drawn at random from the box. Find the probability that the number on the card is
- (i) a prime number
(ii) divisible by 2 and 3 both
(iii) having 2 digits

OR

A card is drawn from a well shuffled pack of 52 cards. The card is drawn at random. Find the probability of getting

- (i) a Jack
(ii) an ace of hearts
(iii) a non-face card

SECTION D

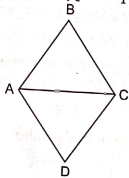
(Each question carries 4 Marks)

- Q23. The product of two numbers is 1296. If one number is 16 times the other, find the number.
- Q24. Factorise
 $4(x + 1)^2 - 28(x + 1) + 49$
- Q25. The population of a town is ₹ 64,000. If the annual birth rate is 10.7% and the annual death rate is 3.2%. Calculate the population after 3 years.
- Q26. Is $(-1 + x)$ a factor of $(-1 + x^4)$? Show by long division method. Verify your answer.
Alternate question for visually challenged students in lieu of Q: 26.
Divide $4p^3 - 12p^2 - 37p - 15$ by $(2p + 1)$ and check whether $2p + 1$ is a factor of polynomial.
- Q27. The diagonals of a rhombus are in the ratio 5 : 12. If its perimeter is 104 cm, find the lengths of the sides and the diagonals.

OR

ABCD is a parallelogram. AP bisects $\angle A$ and CQ bisects $\angle C$. P lies on CD and Q lies on AB. Prove that

- (i) $AP \parallel CQ$
(ii) AQCP is a ||gm
- Q28. Construct quadrilateral ABCD in which $AB = BC = CD = AD = 6$ cm and diagonal $AC = 7$ cm. Measure the length of diagonal BD. What type of quadrilateral is this? Give reason.



Alternate question for visually challenged students in lieu of Q: 28.

Find the value of x if $4\left(\frac{10}{x}\right)^2 - 6\left(\frac{10}{x}\right) + 3\left(\frac{10}{x}\right)^2 = 1$

- Q29. (a) Find the volume of a cube whose surface area is 150 m^2 .
(b) Verify Euler's formula in prism with a square base.

Q30.

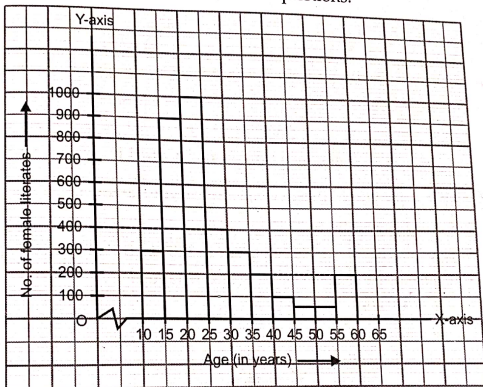
The monthly wages of 40 workers in a factory are given below

2830, 2835, 2890, 2840, 2815, 2835, 2900, 2800, 2915, 2900, 2875, 2870, 2890, 2900, 2817, 2905, 2895, 2875, 2910, 2810, 2905, 2917, 2903, 2883, 2845, 2894, 2819, 2901, 2875, 2908, 2900, 2876, 2843, 2828, 2898, 2919, 2849, 2870, 2890, 2910.

- (i) Prepare a frequency distribution table with class size 20.
 (ii) Draw the histogram

OR

Read the following histogram and answer the questions.



- (i) What is the class size?
 (ii) How many females are literate in the age group of 20 – 35?
 (iii) In which age group, the number of literate females is minimum?
 (iv) Which two class intervals have equal frequency?
- Alternate question for visually challenged students in lieu of Q:30(ii).**
- (a) Find the range of the data.
 (b) Which class interval has minimum frequency?