



General Instructions:

- i) Attempt all the questions.
- ii) The question paper consists of 30 questions divided into four sections A, B, C and D. Section A comprises of 6 sections of 1 mark each, section B comprises of 6 questions of 2 marks each, section C comprises of 10 questions of 3 marks each and section D comprises of 8 questions of 4 marks each.

**Section – A (1 x 6 = 6 marks)**

1. Find the value of x:  $\frac{x}{5} - \frac{x}{6} = 1$ .
2. Factorise:  $8x^2 + 32x$
3. A dice is rolled. Find the probability of getting a number greater than 4.
4. Add the given expressions:  $7xy + 5y^2 + 6xz$ ,  $4xy - 3xz - 2y^2$
5. Write the product:  $\frac{7}{4}x^3$ ,  $(\frac{8}{5}x^2y^2z^2)$ .
6. Find the total surface area of a cube of side 7cm.

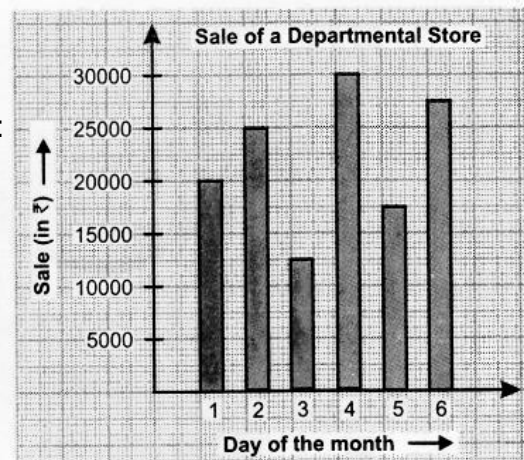
**Section – B (2 x 6 = 12 marks)**

7. Evaluate:  $(\frac{-4}{5})^{-10} \times (\frac{-4}{5})^{15} \div (\frac{-4}{5})^8$
8. Prepare a frequency distribution table for the data given below, for 20 persons working in an organization by taking age groups as 20 -25, 25 – 30 etc.  
32, 41, 28, 45, 32, 28, 31, 40, 36, 35, 35, 43, 26, 29, 37, 33, 31, 34, 43, 24.
9. Find the value of x :  $\frac{2x+1}{3x-2} = \frac{9}{10}$ .
10. Verify Euler's formula for a square prism.
11. Factorize :  $36y^2 - 12xy + x^2$
12. The area of a trapezium is  $540\text{cm}^2$ , its parallel sides are in the ratio 7:5 and perpendicular distance between parallel sides is 18cm. Find the lengths of its parallel sides.

**Section – C (3 x 10 = 30 marks)**

13. 11 men can dig a  $6\frac{3}{4}$  m long trench in one day. How many men should be employed for digging a 27m long trench of the same length in a day.
14. Factorize the following using suitable identities:
  - a)  $4x^2 + 12x + 8$
  - b)  $3x - 243x^5$
15. Three cubes each of edge 3cm length are placed adjacent to each other. Find the surface area of the solid so formed.
16. Simplify for x:  $\frac{7x-1}{4} - \frac{1}{3} \left( 2x - \frac{1-x}{2} \right) = \frac{19}{3}$ .

17. The bar graph shows the sales of a departmental store on the first six days of the month of October. Observe the graph and answer the following questions:



- a) What does the graph represents?
- b) How much more sale was on 5<sup>th</sup> October than on 3<sup>rd</sup> October?
- c) Write the total sale for the first three days of the month.

18. Find the lateral surface area of a right circular cylinder if its base diameter is 7cm and height is 2.5m.

19. Evaluate:  $\left[\left(\frac{2}{3}\right)^3\right]^2 \times 9^{-1} \times \left(\frac{1}{3}\right)^{-4} \times \left(\frac{1}{2}\right)^2$ .

20. Divide  $4(x^2 + 11x + 28)$  by  $4x + 16$ .

21. Plot the points (4, -2) and (2, 2). Draw a straight line passing through these two points. Find the coordinates where this line intersects x-axis and y-axis.

22. Evaluate using suitable identities: a)  $102 \times 94$  b)  $1.03^2 - 0.97^2$

**Section – D (8 x 4 = 32 marks)**

23. 35 workers build a house in 160 days. How many days will 28 workers take to build the same house? Find the number of workers if house to be build in 140 days.

24. A swimming pool is 20m long, 14m wide and 3m deep. Find the cost of cementing its floor and walls at the rate of Rs 15 per m<sup>2</sup>.

25. Factorize:  $x^4 - (x - y)^4$

26. The expenditure of a company during a year was divided as follows:

Wages and salaries	30%
Fuel and power	20%
Materials	15%
Maintenance	25%
Depreciation	10%

Construct a pie chart to depict the above data.

27. The volume of a right circular cylinder is 4224 cu cm and its height is 21cm. Find its radius. Also find its lateral surface area.

28. The denominator of a rational number is greater than its numerator by 4. If numerator is increased by 11 and the denominator is decreased by 1, the new number becomes  $\frac{7}{3}$ . Find the original number.

29. Simplify the expression  $2x(x - 3) - x^2 + (x + 1) + 5$  and evaluate it for  $x = -2$ .

30. The following table gives the information regarding the number of persons employed for a piece of work and time taken to complete it.

No. of persons	2	4	6	1
Time taken (in days)	12	6	4	24

Represent this data through graph. Is it a linear graph?