

Max. Marks: 80

Duration: 3 Hours

Section A – 10 Questions of 1 marks each

1. The cost of 10 pencils is Rs. 30. What is the cost of 13 pencils.
2. What is the coordinate of point Q on the graph at $x = 3$ and $y = -4$.
3. The set of positive and negative integers together with 0 is called _____.
4. If $m - 10 = -21$, find m .
5. What is area of a rectangle whose perimeter is 169 cm and length is 12 cm?
6. Define Euler's formula.
7. How many sides a nonagon has?
8. What is the volume of a cube with side 10 cm?
9. What are 2-dimensional and 3-dimensional shapes. Give 2 examples for each .
10. Define range of the data.

Section B – 10 Questions of 2 marks each

- 11) If the longer side of a trapezium is 12 cm and the distance between the parallel sides is 6 cm. Find the smallest parallel side if the area of figure is 72 cm^2 .
- 12) Using the Identity $(a - b)^2$, find 999^2
- 13) Find k if $0.7k - 1.9 = 0.3(k + 14)$
- 14) What will be the labor charges for digging a cubical pit of 8 m at the rate of Rs.15 per m^3 .
- 15) State whether the following equation is linear or not and solve it: $\frac{(x+1)}{(x-3)} = \frac{1}{3}$
- 16) Is 225 a perfect square? If so, find the number whose square is 225. Explain.
- 17) The sum of two numbers is 144. One of the numbers decreased the other by 81. Find the numbers.
- 18) Factorize $25x^3y - 81xy$
- 19) Find any 5 rational numbers between 4 and 5.
- 20) Simplify $49x^2 - 169y^2$

Section C – 10 questions of 3 marks each

21) Find the smallest number which when multiplied with 3600 will make the product a perfect cube. Further, find the cube root of the product.

22) Find the least number which must be subtracted from 18265 to make it a perfect square. Also, find the square root of the resulting number.

23) Number of wickets taken by Arjun Singh in five consecutive matches is 3, 2, 1, 4 and 5 respectively. Draw a pictograph for the above data.

24) Two numbers are in ratio 5 : 3. If they differ by 18, what are the numbers? 25) The ratio of the present ages of Sunil and his wife is 4 : 3. After 4 years, the ratio of their ages will be 9 : 7. What is the present age of Sunil?

26) Differentiate between Rectangle and square.

27) Consider the following data which gives the number of goals scored by 16 players in a football tournament. 6, 8, 8, 6, 5, 4, 4, 8, 9, 8, 10, 6, 9, 8, 4, 8

28) Two articles are bought for Rs. 1600. One of them is sold at a profit of 20% and the other at a loss of 20%. If the selling prices of both are same; find the cost price of each.

29) Construct a parallelogram ABCD where BC = 10 cm, CD = 8 cm and $\angle BCD = 45^\circ$

30) Two buildings are 20 m and 25 m high. If the buildings are 12 m apart, find the distance between their tops.

Section D – 5 questions of 4 marks each

31) A frequency distribution of marks is given below:

| Marks obtained | 0-20 | 20-40 | 40-60 | 60-80 | 80-100 |
|--------------------|------|-------|-------|-------|--------|
| Number of Students | 5 | 12 | 10 | 5 | 3 |

Draw a Histogram for the above table.

- 32) What is the difference between a normal bar graph and double bar graph?
- 33) The diagonals of a quadrilateral are of lengths 6 cm and 8 cm. If the diagonals bisect each other at right angles, what is the length of each side of the quadrilateral?
- 34) A shopkeeper purchased 100 notebooks for Rs. 20 each. However, he was not able to sell 10 notebooks since those were damaged. The remaining notebooks were sold at Rs. 25 each. Find the gain or loss percentage.
- 35) The dimensions of a room are $16 \times 14 \times 10$ meters. There are 4 windows of $1.3 \text{ m} \times 1.4 \text{ m}$ and 2 doors of $2 \text{ m} \times 1 \text{ m}$. What will be the cost of white washing the walls and painting the doors and windows, if the rate of white washing is Rs.5 per m^2 and rate of painting is Rs.8 per m^2 .