SECTION – A
(Each part carries 1 mark)

1. Choose the correct answer:

(i) Discount is the -------- given on the marked price.
(a) reduction (b) increment (c) list price (d) tax

(ii) \((a+b)(a-b)\) is equal to
(a) \(a^2 + b^2 + 2ab\) (b) \(a^2 - b^2\) (c) \(a^2 + b^2 - 2ab\) (d) \(a^2 + b^2\)

(iii) \(x^m + y^m\) can be written as
(a) \((x + y)^m\) (b) \((xy)^m\) (c) \(x^m y^m\) (d) none of these

(iv) The representation of an expression as the product of its factors is called
(a) expression (b) equation (c) factorisation (d) variable

(v) Every point on the \(x\)-axis is of the form
(a) \((0, y)\) (b) \((x, 0)\) (c) \((x, y)\) (d) \((x, 1)\)

(vi) If \(a\%\) is the discount per cent on a marked price \(x\), then discount is
(a) 100 (b) 100 (c) (d)

(vii) The sum of \(-7pq\) and \(2pq\) is
(a) \(-9pq\) (b) \(9pq\) (c) \(5pq\) (d) \(-5pq\)

(viii) \((-7)^{2x(3-3)}\) is equal to
(a) 49 (b) -49 (c) 1 (d) -1

(ix) The maximum common factor of \(x^2y\) and \(xy^2\) is
(a) \(y\) (b) \(x\) (c) \(xy\) (d) 1

(x) Number of factors of \((a + b)^2\) is
(a) 4 (b) 3 (c) 2 (d) 1

SECTION-B
(Each question carries 2 marks)

2. If the marked price of an article is Rs 80 and it is sold at Rs 76, then find the discount percent.

3. Find the product of \(x^2y^2z^2\) and \((xy - yz)\).

4. Find the area of the rhombus whose diagonals are 18cm and 28cm long.

5. Find the product of cube of (-2) and square of 4.

6. If two cardboard boxes occupy 500cm\(^3\) space, then how much space is required to keep 200 such boxes?

7. Plot the following points on a graph sheet:
   A(1,2) B(3,3) C(4,0) D(0,5)

8. Find the lateral surface area and total surface area of a cube having each edge 12cm long.

9. If \(\frac{x}{72} = \frac{y}{12}\), then find the value of unknown:


<table>
<thead>
<tr>
<th></th>
<th></th>
<th>72</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>y</td>
<td>2</td>
<td>12</td>
</tr>
</tbody>
</table>

10. Explain the situation represented by following distance time graph:

11. It is given that \(m \neq n\). Find the constant of proportion, when \(m = 6\) and \(n = 18\).

12. A swimming pool can be filled in 4 hours by 8 pumps of the same type. How many such pumps are required if the pool is to be filled in 2 hours?

13. The variable \(x\) is inversely proportional to \(y\). If \(x\) increases by \(p\%\), then by what
percent will $y$ decrease?

**OR**

A quantity is directly related to another quantity. If one quantity is tripled, then what will happen to another quantity? Will constant of proportion also change? Why?

**SECTION-C**
(Each question carries 3 marks)

14. Find the original price of an electric iron which was bought for Rs 1350 inclusive of 8% VAT.

15. Simplify: $(a+b) (a+b+c) – (a-b) (a-b-c)$

16. The area of a trapezium is 912 sq cm. The lengths of its parallel sides are in the ratio 6:13 and the height is 24 cm. Find the lengths of parallel sides.

17. Find the value of $x^3$ if $x = (100)^{(1-4)} ÷ (100)^0$

18. Factorise: $63p^2q^2r^2s – 9pq^2r^2s^2 + 15p^2qrs^2$

19. Find the value of 40% of [100 – 20% of 300].

20. Show that: $(2x+5)^2 – 40x = (2x − 5)^2$

21. A tin is 60cm long, 35cm wide and 24cm high. Find the cost of tin sheet required to make it at the rate of Rs 25 per sq cm.

22. Express in standard form.

23. Represent $a^2x^2 + 2ax +1$ as the square of an expression. Consider it as the area of a square and find the length of each side.

24. If the area of rectangle is $x^2 – 9x +20$, find the possible combination of length and breadth.

25. Perform the division of $x^4 − y^4 + x^2 − y^2$ by $x – y$.

**OR**

Simplify the following:

**SECTION-D**
(Each question carries 5 marks)
26. Find the difference between compound interest and simple interest on Rs 45000 at 12% p.a for 2 years.

27. If \( x + y = 7 \) and \( xy = 6 \), find the value of \( x - y \).

28. A cylindrical tank has a radius of 154cm. It is filled with water to a height of 3m. If water to a height of 4.5m is poured into it, what will be the increase in the volume of water in liters?

29. The curved surface area of a cylinder is \( 2(y^2 - 7y + 12) \) and its radius is \( (y - 3) \). Find the height of the cylinder.

30. Draw a graph for the area of the square as per the given table:

<table>
<thead>
<tr>
<th>Side (in cm)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area (in cm²)</td>
<td>1</td>
<td>4</td>
<td>9</td>
<td>16</td>
<td>25</td>
<td>36</td>
</tr>
</tbody>
</table>

Is it a linear graph?

31. A rectangular sheet of dimensions 25cm by 7cm is rolled about its longer side. Find the volume and surface area of the solid thus formed.

OR

The total surface area of a cuboid is 63200cm² and its length, breadth and height are in the ratio 8:5:3. Find the dimensions of the cuboid.