General Instructions:

1. All questions are compulsory.

2. The question paper consists of 31 questions, divided into four Sections A, B, C and D.

3. Section- A contains 10 MCQ’S of 1 mark each.
   Section- B contains 12 questions of 2 marks each.
   Section- C contains 12 questions of 3 marks each.
   Section- D contains 6 questions of 5 marks each.

4. Write the serial number of the question before attempting it.

5. There is no overall choice although one internal choice is given in Section B, C and D.

SECTION –A
(Each question carries 1 mark)

1) Choose the most suitable answer:
   (i) The circumference of a circle is \(20\pi\) units. The diameter of the circle will be
       (a) 10 units                (b) 5 units
       (c) 20 units                (d) 15 units
   (ii) Which of the following is the best buy?
        (a) 2 dozens bananas for Rs.120
        (b) 3 dozen bananas for Rs.150
        (c) 5 dozen bananas for Rs. 200
        (d) 4 dozen bananas Rs. 196
   (iii) The coefficient of \(x^2\) in the polynomial \(5x^3 - 8x^2 – 6x - 5\) is
         (a) -6                (b) -5
         (c) 5                (d) -8
   (iv) A boy walks 18 km in 4 hours. In 6 hours he will cover a distance of
        (a) 27 km                (b) 36 km
        (c) 24 km                (d) 30 km
   (v) In \(\triangle ABC \cong \triangle PQR\) and \(\angle ACB = 30^\circ\) then \(\angle PRQ\) is
       (a) 30°                (b) 70°
       (c) 90°                (d) 60°
   (vi) The value of \(5x^2 – 7y^2\) when \(x = 2\) and \(y = -1\)
        (a) 27                (b) 17
        (c) 13                (d) 3
   (vii) To prove two triangles to be congruent, which of the following properties does not hold good?
(a) ASA  (b) ASA
(c) RHS      (d) SSA

(viii) \((9^0 + 7^0) + (9 + 7)\) = _____
(a) 0  (b) 1
(c) 16 (d) 17

(ix) \(0.009 \times 10^4\) is equal to
(a) 90  (b) 0.09
(c) 9   (d) 0.9

(x) \(\frac{1}{3}\) as percent is equal to
(a) 33\(\frac{1}{3}\) %  (b) 30\(\frac{1}{3}\) %
(c) 40 %  (d) 60 %

SECTION-B

2) Anu had Rs \((3x + 4 y - 2z)\) in his purse. She spent Rs. \((2x + y)\) on the food and \((y - z)\) on the clothes. Find the money left with her in her purse?

3) The area of a square field is 0.1764 ha. Find the side of the field in m.

4) In how many years will Rs. 900 yield an interest of Rs. 324 at 12% per annum simple interest?

5) Simplify \(405 \times 648\) by factorization and express in the exponential form.

6) Find the tenth term of the pattern \(2n^2 - 3\).

7) Evaluate : \([(-20)^2 \div (-4)^2] \times (5)^2\).

8) Construct an isosceles triangle LMN whose equal sides LN = NM = 6 cm.

9) Express the following in its scientific notation. (i) 97975975 (ii) 5403.098

10) Express the congruence of the following pair of triangles. Also, state the condition of congruence.
\[ \triangle ABC, \ AB = 9 \text{ cm}, \ \angle A = 45^\circ, \ \angle B = 50^\circ \]
\[ \triangle PQR, \ PQ = 9 \text{ cm}, \ \angle Q = 45^\circ, \ \angle R = 85^\circ \]

11) The sides of a triangle are in the ratio 9 : 12 : 18. The longest side of the triangle measure 12 cm. What are the lengths of the other sides?

OR

What percent of Rs 600 is Rs.15?

12) If \(a = 1\) and \(b = -2\), find value of \(-5a + 3b^2\).

13) In the given figure, AB and CD bisect each other at E. Prove that \(\triangle ACE \cong \triangle BDE\).
SECTION - C

14) Subtract \(5x - 7y\) from the sum of \(2x^2 - 7y + 5x\) and \(-x + y\).

15) A wheel has a radius of 28 cm. How many revolution will it make to travel 704 m?

16) AP is the angle bisector of \(\angle BAC\) such that AP \(\perp BC\). Is \(\triangle ABC\) an isosceles triangle? Give reasons.

17) Calculate the amount paid by Anita if she borrowed Rs. 2 lakh from the bank for 3 years at 12% p.a.

18) Simplify by using laws of exponents:
\[
\frac{27^3 \times 8^2 \times 10^4}{5^3 \times 3^6 \times 2^6}
\]

19) Find the area of the shaded region.

20) A shopkeeper bought a second hand car for Rs. 1,85,000. He spent Rs. 10,000 on its painting and Rs. 5,000 for its interior work and then sold it for Rs. 2,50,000. Find his profit percent or loss percent?

21) Simplify and find the reciprocal of the rational number \(\left(\frac{1}{2}\right)^2 \div \left(\frac{2}{3}\right)^2\).

22) The speed of a train is 110 km/hr. If the speed is decreased by 10%, what would be the new speed?

**OR**

The present salary of Mr. Khanna is Rs. 3,15,000. His salary was increased by 5% this year. Find his salary before increment.

23) In the following figure, \(\triangle XWY \cong \triangle ZYW\). Find the value of a and b.
24) If 3.5 litres of milk costs Rs. 150.50, how much milk cost Rs. 623.50. Also, find the cost of 5 litres milk.

25) Construct a right angled triangle LMN in which hypotenuse is 13 cm, $\angle M = 90^\circ$ and LM = 6 cm.

**SECTION-D**

26) Construct a triangle PQR, PQ = 5 cm, QR = 4.5 cm and PR = 3.5 cm. Also, construct a line parallel to PQ from the point R.

27) In the figure, ABCD is a rectangle.
   (a) Is $\triangle ACD \cong \triangle DBA$?
   (b) State the three pairs of equal parts of the two triangles.
   (c) Which angle is equal to $C$?

28) From a rectangular card sheet of $25m \times 20m$, two circles of radius 1.4 cm and a square of side 4 cm are removed. Two identical right whose legs are of length 6 cm and 8 cm are joined (as shown). Find the area of the figure so obtained.

**OR**

A wall of a room is of dimensions $5m \times 4m$. It has a window of dimensions $1.5m \times 1m$ and a door of dimensions $2.25m \times 1m$. Find the area of the wall which has to be painted.

29) Find each side of a triangle given below, if it’s perimeter is 63 cm.
30) A rectangular park of length 150 m and breadth 100 m is surrounded by a road of width 2 m. Find the cost of constructing the path at the rate of Rs. 50 per 10 m².

31) Radha had a box of cookies. She gave 30% of cookies to her two friends. She ate 10% of cookies. She was left with 40 cookies which she gave to her servant for her children. How many cookies were there in the box initially. How many cookies she gave to her friends? How many she ate? Mention the value depicted by her.