

St. Mary's Convent Inter College, Prayagraj**Second Unit Assessment - 2024 – 2025****Class – 9****Time – 1 hr****Subject – Mathematics****M.M. – 30****Section -A [10]**

Q1) Choose the correct option :

[5]

- i) The point which lies on y – axis at a distance of 5 units in the negative direction of y – axis is –
a) (0,5) b) (5,0) c) (0,-5) d) (-5,0)
- ii) The points whose abscissa and ordinate have different signs will lie in –
a) I and II quadrants b) II and III quadrants
c) I and III quadrants d) II and IV quadrants
- iii) The perimeter of a triangle with vertices (0,4), (0,0) and (3,0) is
a) 5 units b) 12 units c) 11 units d) 25 units
- iv) $\sqrt[4]{\sqrt[3]{2^2}}$ is equal to –
a) $2^{-\frac{1}{6}}$ b) 2^{-6} c) $2^{\frac{1}{6}}$ d) 2^6
- v) Which of the following is equal to x ?
a) $x^{\frac{12}{7}} - x^{\frac{5}{7}}$ b) $\sqrt[12]{(x^4)^{\frac{1}{3}}}$ c) $(\sqrt{x^3})^{\frac{2}{3}}$ d) $x^{\frac{12}{7}} \times x^{\frac{7}{12}}$

Q2)i) Find the area of a square whose vertices are A (0, -2), B (3, 1), C (0, 4) and D (-3, 1).

[2]

ii) Solve the following equation for :

[3]

$$\left(\sqrt{\frac{3}{5}}\right)^{x+1} = \frac{125}{27}$$

Section – B [20]

Q3)

i. Simplify: $\frac{5 \cdot (25)^{n+1} - 25 \cdot (5)^{2n}}{5 \cdot (5)^{2n+3} - (25)^{n+1}}$ [3]

ii. Simplify: $\left(\frac{x^a}{x^b}\right)^{\frac{1}{a+b}} \left(\frac{x^b}{x^c}\right)^{\frac{1}{b+c}} \left(\frac{x^c}{x^a}\right)^{\frac{1}{c+a}}$ [3]

iii. A(- 4, - 1), B(- 1, 2) and C(x, 5) are the vertices of an isosceles triangle. Find the value of x, given that AB is the unequal side. [4]

Q4)

- i. By using distance formula, show that the points (4,2), (7,5) and (9, 7) are collinear. [3]
- ii. Draw the graph of $2x + 3y = 6$ and use it to find the area of the triangle formed by the line and the coordinate axes. take 1cm=1unit on both the axes. [3]
- iii. Solve the following system of equations graphically: [4]

$$4x - y = 5, \quad 5y - 4x = 7.$$