St. Mary's Convent Inter College, Prayagraj
First Unit Assessment –2024-25

Time :1hr. **Class- 9** **M.M. : 30**

Mathematics

Name : ..... Roll No. ..... Date : .....

Q1) Choose the correct answer from the options: **[5]**

i) The value of $249^2 - 248^2$ is

(a) 1^2 (b) 477 (c) 487 (d) 497

ii) If $x + y = 11$ and $xy = 24$, then$x^2 + y^2$ is equal to

(a) 121 (b) 73 (c) 48 (d) 169

iii) If $a + b + c = 0$, then the value of $a^3 + b^3 + c^3$ is

(a) 0 (b) abc (c) 2abc (d) $3abc$

iv) One of the factors of $(25x^2 - 1) + (1 + 5x)^2$ is

(a) $5 + x$ (b) $5 - x$ (c) $5x - 1$ (d) $10x$

~~iv)~~ Factorisation of $y(y - z) + 9(z - y)$ is

a) $(y - z)(y + 9)$ **(b)** $(y - z)(y - 9)$

(c) $(z - y)(y + 9)$ **(d)** none of these

Q2)

a) If $\left(x^2 + \frac{1}{x^2}\right) = 27$, find the value of $\left(x - \frac{1}{x}\right)$. **[2]**

b) Factorise: $(ax + by)^2 + (bx - ay)^2$. **[3]**

Q3)

a) Factorise: $x^2 - x - 72$ [3]

b) Expand: $\left(2x - \frac{1}{3y}\right)^3$. [3]

c) Simplify: $(2x + y + 3)(2x - y - 3)$. [4]

Q4)

a) Factorise: $9x^2 - (x^2 + 2x + 1)$. [3]

b) If $a + b + c = 12$, and $ab + bc + ca = 22$, find $(a^2 + b^2 + c^2)$. [3]

c) If $x = 5 - 2\sqrt{6}$, find the value of $\sqrt{x} + \frac{1}{\sqrt{x}}$. [4]