



विद्या सर्वार्थ साधिका

ANANDALAYA
PERIODIC TEST – 1
Class : IX

Subject: Mathematics (041)
Date : 19-07-2023

M.M: 40
Time: 1 Hour 30 min

General Instructions:

1. The question paper consists of 22 questions divided into 3 sections A, B and C
2. All questions are compulsory.
3. Section A comprises of 10 questions of 1 mark each.
4. Section B comprises of 6 questions of 2 marks each. Internal choice has been provided in two questions.
5. Section C comprises of 6 questions of 3 marks each. Internal choice has been provided in two questions.

SECTION- A

- 1 The value of $9^{\frac{3}{2}} - (3 \times 2^0) - \left(\frac{1}{81}\right)^{-\frac{1}{2}}$ is _____. (1)
(A) 24 (B) 15 (C) 14 (D) 16
- 2 Let $x = \frac{11}{2^2 \times 5^3}$ be a rational number. Then x has a decimal expansion which terminates after _____ places of decimal. (1)
(A) 1 (B) 2 (C) 3 (D) 5
- 3 If $P(x) = x^2 - 5\sqrt{5}x + 1$ then find $P(5\sqrt{5})$. (1)
(A) 25 (B) 1 (C) 125 (D) -1
- 4 If $64y^2 - p = \left(8y - \frac{1}{2}\right) \left(8y + \frac{1}{2}\right)$ then $p =$ _____. (1)
(A) $\frac{1}{2}$ (B) $\frac{1}{4}$ (C) 2 (D) 4
- 5 Given a polynomial $p(t) = t^4 - t^3 + t^2 + 6$, then $p(-1)$ is _____. (1)
(A) 6 (B) 7 (C) 9 (D) -1
- 6 Which one of the following is not a polynomial? (1)
(A) $\frac{1}{2}$ (B) $\sqrt{2} - \sqrt{5}y$ (C) $y^{-1} + \frac{1}{y-1}$ (D) $\frac{1}{x-1} + x^2$
- 7 If $x = \sqrt{7} + \sqrt{5}$ and $y = \sqrt{7} - \sqrt{5}$, then $xy =$ _____. (1)
(A) 2 (B) 12 (C) -12 (D) -2
- 8 If the coordinates of the two points are $P(-5, 3)$ and $Q(8, -9)$, then (abscissa of Q) - (abscissa of P) is _____. (1)
(A) -13 (B) 11 (C) 13 (D) 5
- 9 The point $P(\alpha, \beta)$ lies in the IVth quadrant. Which of the following is true? (1)
(A) $\alpha = \beta$ (B) $\alpha < \beta$ (C) $\alpha > \beta$ (D) $\alpha = 0, \beta = 0$
- 10 The perpendicular distance of the point P (5, 7) from the y-axis is _____. (1)
(A) 7 (B) 12 (C) 0 (D) 5

SECTION- B

- 11 a) $\sqrt{\frac{q}{p}} = \left(\frac{p}{q}\right)^{1-2x}$ then the value of $x =$ _____. (2)

OR

- b) Find four rational numbers between $\frac{3}{5}$ and $\frac{7}{8}$.

12. Simplify: $(1^3 + 2^3 + 3^3 + 4^3 + 5^3)^{\frac{1}{2}}$
- 13 Find the remainder when $4x^3 - 3x^2 + 4x - 2$ is divided by $x - 2$. (2)
- 14 Expand using appropriate identity: $(4 - \frac{1}{3x})^3$ (2)
- 15 (a) Simplify: $(x + y + z)^2 - (x - y + z)^2$ (2)

OR

- (b) Factorise : $xy^9 - x^9 y$
- 16 Write whether the following statements are True or False? (2)
- i) Point $(0, -5)$ lies on y -axis.
- ii) Point $(3, 3)$ lies in the first quadrant.
- iii) The perpendicular distance of the point $(4, 3)$ from the x -axis is 4.
- iv) Points $(3, -3)$ and $(-3, 3)$ lie in the same quadrant.

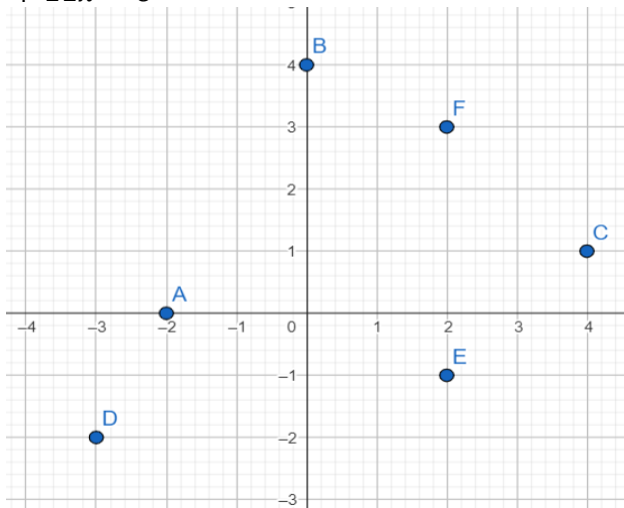
SECTION- C

- 17 If $\frac{7 + \sqrt{5}}{7 - \sqrt{5}} - \frac{7 - \sqrt{5}}{7 + \sqrt{5}} = a + \frac{7}{11}\sqrt{5} b$, find the value of a and b . (3)

- 18 Examine whether $x - 1$ is a factor of the following polynomials: (3)
- (i) $2x^3 - 5x^2 + x + 2$ (ii) $4x^3 + 5x^2 - 3x + 6$

OR

- Factorise using factor theorem : $p(x) = x^3 - 6x^2 + 11x - 6$
- 19 i) The perpendicular distance of the point F from Y- axis is _____ . (3)
- ii) Write the coordinates the point B
- iii) The abscissa of the point E
- iv) Coordinates of A.
- v) The ordinate of the point D
- vi) The point identified by the coordinates $(4, 1)$



- 20 Express $2.\overline{124}$ in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$. (3)
- 21 a) If $a = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$, $b = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$ find $a^2 + b^2$. (3)

OR

- b) Prove that: $\frac{1}{3 + \sqrt{7}} + \frac{1}{\sqrt{7} + \sqrt{5}} + \frac{1}{\sqrt{5} + \sqrt{3}} + \frac{1}{\sqrt{3} + 1} = 1$
- 22 If $a + b + c = 9$ and $ab + bc + ca = 26$ then find the value of $a^2 + b^2 + c^2$ (3)