ANANDALAYA
PERIODIC TEST -1
Class : IX

Subject: Mathematics
Date : 15– 07 –2022

M.M: 40
Time: 2 hours

General Instructions:
1. The question paper consists of 17 questions divided into 4 sections A, B, C and D
2. All questions are compulsory.
3. Section A comprises of 5 questions of 1mark each. Internal choice has been provided in onequestion.
4. Section B comprises of 4questions of 2 marks each. Internal choice has been provided in one question.
5. Section C comprises of 5 questions of 3 marks each. An internal choice has been provided in one question.
6. Section D comprises of 3 questions of 4 marks each. An internal choice has been provided in one question.

SECTION- A

1   The decimal expansion of $\frac{1}{125}$ is in the form _____ (1)

(A) Terminating   (B) Non-terminating

(C) Non-terminating repeating   (D) Non-terminating non-repeating

2   Which one of the following is a polynomial? (1)

(A) $\frac{x}{2} - x^{-3}$ (B) $\sqrt{x} - 1$ (C) $x^{-1} + \frac{1}{x^{-1}}$ (D) $\frac{1}{x^{-2}} + x$

3   a) Find the quadrant in which the point lies, if ordinate is 5 and abscissa is -3 . (1)

OR

b) If the coordinates of the two points are P $(–1, 3)$ and Q$(–3, 5)$, then
(abscissa of P) – (ordinate of Q) is _____

4   If $81x^2 - p = \left(9x - \frac{1}{5}\right)\left(9x + \frac{1}{5}\right)$ then p = ____ (1)

5   If $(x - 2)$ is a factor of $x^3 - 3x^2 + k$, then k = _____ (1)

SECTION- B

6   a) Solve for x : $\left(\frac{5}{3}\right)^{4-x} = \left(\frac{3}{5}\right)^{2x+1}$ (2)

OR

b) If $x = 3 + 2\sqrt{2}$ and $y = \frac{1}{x}$ then find the value of $x^2 + y^2$

7   If $P(x) = x^2 - 4x + 3$, evaluate $P(2) - P(-1)$ (2)

8   Factorise the polynomial using splitting of middle term: $3x^2 + 7x + 2$ (2)

9   Write whether the following statements are True or False? (2)

i) Point $(0, –2)$ lies on y-axis

ii) Point $(3, 0)$ lies in the first quadrant.

iii) The perpendicular distance of the point $(4, 3)$ from the x-axis is 4.

iv) Points $(1, –1)$ and $(–1, 1)$ lie in the same quadrant

SECTION- C

10   i) The perpendicular distance of the point B to Y- axis is _____ (3)

ii) The point which is on the x- axis, write the coordinates.

iii) The abscissa of the point C

iv) Coordinates of A.

v) The ordinate of the point F

vi) The point identified by the coordinates$(-4,\ 2)$
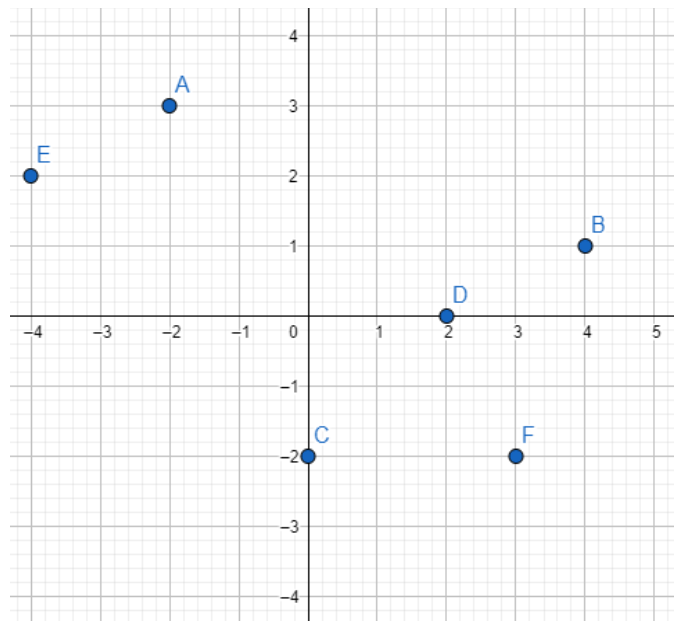
11   Express $18.\overline{48}$ in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.   (3)

12   Find the values of $a\ and\ b$ if $\dfrac{\sqrt{2}+1}{\sqrt{2}-1} - \dfrac{\sqrt{2}-1}{\sqrt{2}+1} = a + b\sqrt{2}.$ (3)

13   a) If $x + y + z = 6$ and $x^2 + y^2 + z^2 = 14$ then find the value of $xy + yz + zx$ (3)

OR

b) Without actually calculating cubes and using suitable identities , find the value of $25^3 + (-17)^3 + (-8)^3$

14.   Find the remainder when $4x^3 - 3x^2 + 4x - 2$ is divided by   (i) $x + 2$ (ii) $x + \frac{1}{2}$ (3)

SECTION - D

15.   a) Factorise: $x^3 - 6x^2 + 11x - 6$ (4)

OR

b) Write the expanded form of (i) $(2a - 3b)^3$ (ii) $(a - 2b + 3c)^2$

16   If $x = 1 - \sqrt{2}$, find $(i)\ x + \frac{1}{x}$ $(ii)\ x^2 + \frac{1}{x^2}$.   (4)

17.   Simplify : $\dfrac{2 + \sqrt{3}}{2 - \sqrt{3}} + \dfrac{2 - \sqrt{3}}{2 + \sqrt{3}} + \dfrac{\sqrt{3}-1}{\sqrt{3}+ 1}$ (4)