SUMMATIVE ASSISEMENT – 1, JANUARY - 2022

MATHEMATICS PAPER – 1

(Modal Paper – 5)

Class: 9th **Max. Marks: 40** **Time: 2hr 45 min**

Instructions to students:

1. **There are four sections and 33 questions in this paper.**
2. **Answers should be written in answer sheets.**
3. **There is an internal choice in Section – Iv**
4. **Write all questions visible and legibly.**
5. **15 Minutes are given for reading the question paper and 2hr 30 min given for writing answers.**

Section – 1

Note: 1. Answer all questions

2. Each question carries ½ mark. **20 × ½ = 10 M**

1. The point (-3, 2) lies in _____

   A) Q_1 B) Q_2 C) Q_3 D) Q_4

2. If P(x) = x^2 - 2x + 3 is divided by (x + 1), then the remainder is _____

   A) 4 B) 6 C) P(-1) D) Both B & C

3. $(a + \sqrt{b})(a - \sqrt{b})$ = _____

   A) $a^2 + \sqrt{b}$ B) $a^2 - \sqrt{b}$ C) a^2 - b D) $a^2 - b^2$

4. Choose the correct answer following.

   Statement P: R.F of 2 - $\sqrt{3}$ is 2 + $\sqrt{3}$

   Statement Q: An irrational number have a unique rationalizing factor.

   A) P true, Q false B) P false, Q true C) Both P, Q are true D) Both P, Q are false

5. If x < 0 and y < 0, then the point (-x, y) lies in _____

   A) Q_1 B) Q_2 C) Q_3 D) Q_4

6. 0.6666666…… in p/q form _____

7. Which of the following is on $\overrightarrow{OY'}$ in graph?

   A) (0,0) B) (0, 3) C) (0, -3) D) (-3, 0)

8. Match the following

   A. $6\sqrt{3} \times \sqrt{3}$ = ( ) i) 1

   B. $(1 + \sqrt{3})^2$ = ( ) ii) 18

   C. $(\sqrt{3} - \sqrt{2})(\sqrt{3} + \sqrt{2})$ = ( ) iii) $4 + 2\sqrt{3}$

   A) A – i, B – ii, C – iii B) A – ii, B – iii, C – i C) A – ii, B – i, C – iii D) A – iii, B – i, C – ii

9. If P(K) = 0, then which of the following is false?

   A) 'k' is zero of P(x). C) (x – k) is a factor of P(x)

   B) (x + k) is a factor of p(x) D) None of these

10. An irrational number between 2 and 3 is _____

    A) $\frac{5}{2}$ B) $\sqrt{5}$ C) $\sqrt{4}$ D) $\sqrt{10}$

11. Which of the following is true?

    A) The product of two irrational numbers is an irrational number.

    B) The product of a rational and an irrational number is an irrational number.

    C) The sum of two irrational numbers is an irrational number.

    D) The sum of two rational numbers is an irrational number.

12. The radical form of $(16)^{2/3}$ is _____

    A) $\sqrt[2]{16^3}$ B) $\sqrt[3]{16^2}$ C) 4^3 D) $\sqrt{(16)^{2/3}}$

13. The number of zeroes of quadratic polynomial is _____

    A) 2 B) 3 C) maximum 2 D) maximum 3

14. $\sqrt[5]{32^2}$ value is _____

    A) 2 B) 4 C) $\frac{1}{2}$ D) $\frac{1}{4}$

15. The degree of the constant polynomial

    A) 2 B) 4 C) 1 D) any constant

16. Which of the following is false statement?

    A) A constant polynomial has no zeroes

    B) A zero polynomial has infinitely many zeroes

    C) Both A & B D) None of these

17. (x + 3)(x – 5) = _____

    A) $X^2 - 2x - 15$ B)$x^2 + 2x - 15$ C) $x^2 - 2x + 15$ D) $x^2 + 2x + 15$

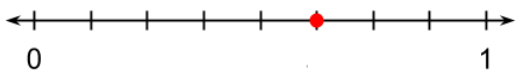
18. The degree of divided P(x) is 'm' and degree of divisor Q(x) is 'n' then degree of quotient is

    A) m + n B) m – n C) m × n D) $\frac{m}{n}$

19. The point which lies on both axes is _____

    A) (5, 4) B) (0, 0) C) (5, 0) D) (0, -5)

20. In the following number line the point represent _____



    A) $\frac{5}{7}$ B) $\frac{5}{8}$ C) $\frac{5}{7}$ D) 5

Section – II

Note: 1. Answer all the questions

2. Each question carries 1 mark. **4 × 1 = 4 M**

21. Express $\frac{5}{7}$ in decimal form.
22. Write two points whose abscissa is greater than ordinate in Q_2?
23. Given $P(y) = 2 + y + 2y^2 - y^3$, find P(2)?
24. Expand $(2a + 3b + 5)^2$?

Section – III

Note: 1. Answer all the questions.

2. Each question carries 2 marks. **5 × 2 = 10 M**

25. Express the decimal number $1.2\overline{5}$ in p/q form where p and q are co-primes.
26. Find the value of $\sqrt{3}$ upto 3 decimal places.
27. Verify whether 2 and 1 are zeroes of the polynomial $x^2 - 3x + 2$?
28. Show that if $x + y + z = 0$, then $x^3 + y^3 + z^3 = 3xyz$?
29. Write the points which satisfies the statements given.

    i) The point A lies at 5 cm distance from X-axis and 3 cm distance from Y-axis lie in Q_1

    ii) The point B lies at 3 cm distance from X-axis and 5 cm distance from Y-axis lie in Q_2

Section – IV

Note: 1. Answer all the questions.

2. Each questions carries 4 marks.

3. There is internal choice for each question. **4 × 4 = 16 M**

30. If $x = \frac{\sqrt{5}-2}{\sqrt{5}+2}$ and $y = \frac{\sqrt{5}+2}{\sqrt{5}-2}$ then find the value of $x^2 - y^2$?

    OR

    Find the value of 'a' and 'b' if $\frac{\sqrt{7}-1}{\sqrt{7}+1} - \frac{\sqrt{7}+1}{\sqrt{7}-1} = a + b\sqrt{7}$
31. Show that $2x^4 – 6x^3 + 3x^2 + 3x – 2$ is a multiple of $x^2 - 3x + 2$?

    OR

    Verify that $x^3 + y^3 + z^3 – 3xyz = \frac{1}{2}(x + y + z)[(x – y)^2 + (y – z)^2 + (z- x)^2]$.
32. Factorize: $x^3 + 13x + 32x + 20$

    OR

    When a polynomial $2x^3 + 3x^2 + ax + b$ is divided by (x- 2) leaves remainder 2 and (x + 2) leaves remainder – 2. Find 'a' and 'b'?

33. Plot the points or a graph sheet. Which points lie on same line.

A) (0, 4), B) (5, 0), C) (-3, -2), D) (2, -13), E) (2, 3), F) (0, -8), G) (-3, 0), H) (-3, 4),

I) (0, 6), J) (-6, 0), K) (2, 8), L) (-3, 2)

OR

Locate $\sqrt{10}$ on number line.