SUMMATIVE ASSISEMENT – 1, JANUARY - 2022

MATHEMATICS PAPER – 1

(Modal Paper – 2)

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 lying on the negative side of X – axis at a distance of 5 units from origin is

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

2. The degree of zero polynomial is _____

   A) 0 B) 1 C) 2 D) Not define

3. R.F of $2 + \sqrt{3}$ is _____

   A) $\sqrt{3}$ B) $-\sqrt{3}$ C) $2 - \sqrt{3}$ D) $\sqrt{2} + 3$

4. Choose the correct answer following.

   Statement P: The p/q form of 0.66666…… is $\frac{2}{3}$.

   Statement Q: $\sqrt[3]{343} = 7$.

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

5. The coordinates of origin is _____

6. If a < 0, then the point (-a, a) lies in _____ quadrant.

7. An irrational number between 2 and 3 is _____

8. Match the following

   The position of the point (x, - y) if

   A. x < 0 and y < 0 ( ) i) Q_1

   B. x > 0 and y < 0 ( ) ii) Q_4

   C. x > 0 and y > 0 ( ) iii) Q_2

   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. Zero of the polynomial 9x + 4 is _____

A) $\frac{4}{9}$ B) $\frac{-4}{9}$ C) $\frac{9}{4}$ D) $\frac{-9}{4}$

10. The exponential form of $\sqrt[3]{a^4}$ is _____

A) $a^{\frac{1}{4}}$ B) $a^{\frac{1}{3}}$ C) $a^{\frac{3}{4}}$ D) $a^{\frac{4}{3}}$

11. Which of the following is false?

A) $x^2 - y^2 = (x + y)(x - y)$ B) $x^3 - y^3 = (x - y)(x^2 + xy + y^2)$

C) $x^3 + y^3 = (x + y)(x^2 + xy + y^2)$ D) None of these

12. If 'n' is a natural number other than perfect square then $\sqrt{n}$ is _____ number.

A) Rational B) Irrational C) Positive Integer D) Negative integer

13. If P(x) = x + 1, then 3.P(2) – 2.P(3) = _____

A) 0 B) 1 C) – 1 D) 4

14. Which of the following is not a polynomial?

A) $X^2 + x + 1$ B) x + 1 C) $x + \frac{1}{x}$ D) π

15. If $\sqrt{2}$ = 1.414, then $\sqrt{8}$ = _____

A) 2.828 B) 11.212 C) – 1.414 D) 4.212

16. A factor of $ax^4 + bx^3 + cx^2 + dx + e$ is (x + 1), then _____

A) a + b + c + d + e = 0 C) a + b + c = d + e

B) a + c + e = b + d D) a = b = c = d = e

17. Given that P(k) = 0 then _____

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

B) (x + K) is a factor of P(x) D) Both A and C.

18. Which of the following is a quadratic polynomial?

A) 2πr B) πr^2 C) both A and B D) None of these

19. If $\frac{1}{7} = 0.\overline{142857}$, then $\frac{4}{7}$ = _____

A) $0.\overline{428571}$ B) $0.\overline{571428}$ C) $0.\overline{857142}$ D) $0.\overline{285714}$

20. Sum of the abscissa of (3, -7) and ordinate of (-2, 5) is _____

A) 8 B) 1 C) – 1 D) - 2

Section – II

Note: 1. Answer all the questions

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

21. Write two irrational numbers between 0.5 and 0.55?

22. What can you say the position of the points (1, 4), (1, 3), (1, -1) and (1, 0)?
23. Find the remainder when the polynomial $P(x) = 2x^2 + 7x - 1$ divided by 'x' ?
24. Give an example to a linear polynomial which a trinomial?

Section – III

Note: 1. Answer all the questions.

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

25. Express the decimal number $3.12\overline{7}$ in p/q form.
26. "Product of two irrational numbers is an irrational number". Is it true? Justify your answer by examples.
27. Define and prove the "Remainder theorem".
28. Factorize $27x^3 + b^3 + 8c^3 - 18abc$ using identity.
29. Write any four points about coordinate system?

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 $\frac{\sqrt{5}+\sqrt{3}}{2\sqrt{5}-3\sqrt{3}} = a - b\sqrt{15}$, then find the values of a and b?

OR

Simplify: $\frac{1}{7+4\sqrt{3}} + \frac{1}{2+\sqrt{5}}$.

31. if $x^2 - x - 6$ and $x^2 + 3x - 18$ have a common factor $(x + a)$, then find the value of 'a'?

OR

Find the remainder when $f(x) = x^4 - 3x^2 + 4$ is divided by $(x - 2)$ and verify the result by actual division.

32. Factorize: $x^3 - 23x^2 + 142x - 120$

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 (2, 3), (6, 3) and (4, 7) in a graph sheet. Join them to make it a triangle. Find the area of the triangle?

OR

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