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 – I

Note: 1. Answer all the questions

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

1. Show that every integer is a rational number by an example?
2. Write two points which are at 4 units distance from X – axis and 5 units distance from Y – axis?
3. Factorize: $49x^2 - 64y^2$
4. Find zero of the polynomial $2x + 5$?

Section – II

Note: 1. Answer all the questions.

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

5. Find the value of $\sqrt{3}$ upto 3 decimal places.
6. Check whether the polynomial $P(y) = 4y^3 + 4y^2 - y - 1$ is a multiple of $(2y + 1)$?
7. Give possible expressions for the length and breadth of a rectangle whose area is $x^2 - 3x + 4$
8. Explain about cartesian plane with a diagram?
9. Area of a rectangle part is 180 m^2. if its width is $5\sqrt{3}$ m, find its perimeter?

Section - III

Note: 1. Answer all the questions.

2. Each questions carries 4 marks.

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

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

OR

Prove the following with an example.

A) Sum of two irrational numbers is need not be an irrational number.

B) Product of two irrational numbers is need not be an irrational number.

11. find the value of 'k' if $2x - 3$ is a factor of $2x^3 - 9x^2 + x + K$?

OR

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

12. 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 value of 'a' and 'b' so that the polynomial $x^3 + 10x^2 + ax + b$ is exactly divisible by $(x - 1)$ and $(x - 2)$.

13. Visualize 2.874 on the number line, using successive magnification.

OR

Plot six points on a coordinate plane whose sum of coordinates is five

Section – 1

Note: 1. Answer all questions

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

14.

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

15. $ax^2 + bx + c$ represents a quadratic polynomial if _____

A) $a \neq 0$ B) $b \neq 0$ C) $c \neq 0$ D) all the above

16. if m < n, then $\frac{a^m}{a^n}$ = _____

A) a^{m-n} B) a^{n-m} C) $\frac{1}{a^{n-m}}$ D) $\frac{1}{a^{m-n}}$

17. Choose the correct answer following.

Statement P: If A = 0.525252……. and B = 0.010011…… then A is rational and B is irrational

Statement Q: A rational number can be expressed as a terminal decimal or non-terminating repeating decimal.

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

18. The point (3, 0) lies on _____

19. If $\frac{x}{y} + \frac{y}{x}$ = -1, then the value of $x^3 - y^3$ = _____

20. Assertion: If x < 0 and y < 0, then the point (-x, -y) lies in Q_1.
Reason : in Q_1, both abscissa and ordinate are positive.

A) Both Assertion and Reason are true. Reason is supporting the Assertion.
B) Both Assertion and Reason are true. Reason does not support the Assertion.
C) Assertion is true. Reason is false
D) Assertion is false. Reason is true.

21. Match the following

A. $(343)^{1/3}$ ( ) p) 6

B. $(64)^{1/2}$ ( ) q) 7

C. $3\sqrt[5]{32}$ ( ) r) 8

A) A – p, B – q, C – r B) A – q, B – r, C – p C) A – q, B – p, C – r D) A – r, B – p, C – q

22. The coefficient of x^3 in the polynomial $3x^2 + 5x - 1$ is _____

23. If $\frac{p}{q}$ is a terminating decimal, the _____ is a prime factor of 'q'.

A) 2 B) 5 C) 2 or 5 D) 2 and 5

24. If sum of coefficient of all variables in a polynomial is zero, _____ is a factor of polynomial

A) x + 1 B) x – 1 C) x D) $x^2 - 1$

25. The identity used in the simplification of 101 × 101 is _____

A) $(a + b)^2 = a^2 + 2ab + b^2$ C) $(a - b)^2 = a^2 - 2ab + b^2$

B) $(a + b)(a – b) = a^2 - b^2$ D) None of these.

26. A factor of $x^n – 1$ is _____

A) x – 1 B) x + 1 C) n D) x

27. Who proved $\sqrt{2}$ as irrational number?

A) Euclid B) Pythagoreans C) Rene Descart D) Theodorus

28. The value of $\frac{\sqrt{48}+\sqrt{32}}{\sqrt{27}+\sqrt{18}}$ = _____

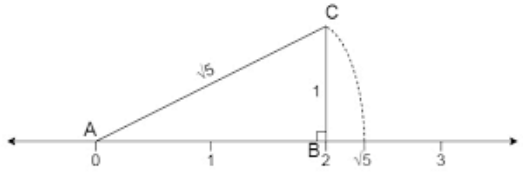
A) $\frac{4}{3}$ B) 4 C) 3 D) $\frac{2}{4}$

29. If $x + \frac{1}{x} = 2$, then $x^2 + \frac{1}{x^2}$ = _____

A) 25 B) 10 C) 23 D) 27

30. The ordinate of any point on X – axis is _____

31. The following diagram represents _____



A) $\sqrt{2}$ B) $\sqrt{3}$ C) $\sqrt{5}$ D) $\sqrt{10}$

32. Every point on number line represents _____ number.

A) Real B) rational C) irrational D) integer

33. $\frac{a^2-b^2}{a-b}$ = _____

A) a – b B) a + b C) 2 D) can't say