MATHEMATICS (Fresh) 9th

Time: 20 Minutes   Marks: 15

Multiple Choice Questions
01 Mark for each

Paper Code
① ● ⑨

Roll No. of the Student

Serial No. Of the Answer Book _____

SECTION-A

Note:

1) Attempting all MCQs is compulsory. This paper along with the OMR sheet must be returned to the superintendent after due time.
2) Fill the circle Ⓐ Ⓑ Ⓒ Ⓓ, which one is correct with blue or black ball point, in this sheet as well as in separate OMR Sheet like ●
3) If more than one circle in the OMR sheet is filled then no credit will be given to such answer.

1. In simplified form $\frac{1}{a+b} + \frac{b}{a^2-b^2} =$ _____.

   Ⓐ $\frac{b+1}{a^2-b^2}$ Ⓑ $\frac{a}{a^2-b^2}$ Ⓒ $\frac{b}{a^2-b^2}$ Ⓓ $\frac{b+a}{a^2-b^2}$

2. The point $(-3, 4)$ is located in _____.

   Ⓐ 1st Quadrant   ● 2nd Quadrant   Ⓒ 3rd Quadrant   Ⓓ 4th Quadrant

3. $x \geq 5$ means _____.

   Ⓐ $x > 5$ Ⓑ $x = 5$ ● $x > 5$ or $x = 5$ Ⓓ $x > 5$ or $x = 5$

4. L.C.M of $(a^2 - a + 1)$ and $(a^3 + 1)$ is _____.

   Ⓐ $a + 1$ ● $a^2 - a + 1$ Ⓒ $a^3 + 1$ Ⓓ $a^2 + a + 1$

5. Base in common logrithm is _____.

   ● 10   Ⓑ e Ⓒ π Ⓓ 5

6. $(2i)(-3i) =$ _____.

   ● 6   Ⓑ -6   Ⓒ $-6i$ Ⓓ $6i$

7. The simplified form of $(a^2b)(a^2b)$ is _____.

   Ⓐ a^2b^2 Ⓑ $(ab)^2$ ● a^4b^2 Ⓓ a^4b

8. If $A = \begin{pmatrix} 1 & 3 \\ 2 & -2 \end{pmatrix}$, than A^{-1} equals _____.

   Ⓐ $-\frac{1}{8}\begin{pmatrix} -1 & 3 \\ 2 & 2 \end{pmatrix}$ Ⓑ $-\frac{1}{8}\begin{pmatrix} -2 & -3 \\ -2 & 1 \end{pmatrix}$ Ⓒ $\frac{1}{8}\begin{pmatrix} -2 & 3 \\ 2 & 2 \end{pmatrix}$ Ⓓ $\frac{1}{8}\begin{pmatrix} -2 & -3 \\ -2 & -2 \end{pmatrix}$

9. In a right angle triangle one angle is _____.

   ● 90° Ⓑ 180° Ⓒ 270° Ⓓ 360°

10. The standarad form of 3.65×10^{-4} is _____.

    Ⓐ 0.00365   ● 0.000365   Ⓒ 36500   Ⓓ 0.0365

11. Measure of one side of an equilateral triangle is 6 cm. Length of its median is _____ than 9 cm.

    Ⓐ less than   ● Ⓑ greater than   Ⓒ equal to   Ⓓ less than or equal to

12. Diagonal of _____ does not divide it into two congruent angles.

    Ⓐ rectangle   Ⓑ square   Ⓒ paralellogram   ● trapezium

13. The expression $(2x^2 + x)$ is _____.

    Ⓐ rational algebric expression   Ⓑ binomial expression
    Ⓒ zero polynomial   Ⓓ irrational expression

14. The conjugate of $(2 - \sqrt{3})$ is _____.

    Ⓐ $-2 - \sqrt{3}$ Ⓑ $-2 + \sqrt{3}$ Ⓒ $\frac{1}{2+\sqrt{3}}$ ● $2 + \sqrt{3}$

15. Which of the following are the sides of a right angle triangle? _____.

    Ⓐ 2, 3, 4   ● 3, 4, 5   Ⓒ 4, 5, 6   Ⓓ 5, 6, 7

MATHEMATICS (Fresh) 9th

Note: Time allowed for Section B and C is 2 hours and 40 minutes.

SECTION "B" Marks: 36

I. **Attempt any NINE Parts out of the following. Each Part carries equal marks.**

i. Solve the system of linear equations $x + 2y = -13$ and $3x + 6y = 11$ by using inversion method.

ii. Simplify $\left(\dfrac{x^n}{x^q}\right)^{n+q} \cdot \left(\dfrac{x^q}{x^r}\right)^{q+r} \cdot \left(\dfrac{x^r}{x^p}\right)^{r+p}$

iii. Simplify $\dfrac{2.83}{(6.52)^2}$ with the help of logarithm.

iv. When $(a+b+c) = 5$ and $(ab+bc+ca) = -2$, then find the value of $(a^2 + b^2 + c^2)$

v. If $x = 5 - 2\sqrt{6}$, find the values of $x^2 + \dfrac{1}{x^2}$.

vi. Factorize $\left(x^4 + 64\right)$

vii. Using factor theorem, factorize the polynomial $\left(x^3 - 4x^2 - 3x + 18\right)$

viii. Find the H.C.F of $\left(x^2 - x - 6\right)$ and $\left(x^2 - 2x - 3\right)$ by division method.

ix. For what value of K the expression $\left(4x^4 + 32x^2 + 96x + \dfrac{128}{x^2} + \dfrac{k}{x^4}\right)$ will become a perfect square.

x. Find the solution set of $\dfrac{1}{x-1} = \dfrac{2}{x-2}$ and verify the answers.

xi. Construct a table for four pair of values satisfying the equation $x + y = 4$

xii. Let $C = \begin{pmatrix} 7 & -3 \\ 2 & -1 \end{pmatrix}$, $D = \begin{pmatrix} 1 & 1 \\ 2 & 2 \end{pmatrix}$, Prove that $(C+D)^t = C^t + D^t$

SECTION "C" Marks: 24

Note: Attempt any THREE questions of the following. Each question carries equal Marks.

I. Show that the points $A(-1,2)$, $B(7,5)$ and $C(2,-6)$ are the vertices of right angle triangle.

II. Prove that in a parallelogram, the opposite sides and opposite angles are congruent. Also diagonals of the parallelogram bisect each other.

III. If the internal bisector of an angle of a triangle divides the side opposite to it in the ratio of the lengths of the sides containing the angles.

IV. Construct a ΔKLM, such that $m\ \overline{KL} = 5.5\ cm$, $m < K = 60^\circ$ and $m < L = 45^\circ$. Also draw their altitudes and verify their concurrency