P-412

Paper Code: _____

1	1
2	2
3	3

ESKP-ix1901

MATHEMATICS (New Course) – 9th

Time: 3 hours

Marks: 75

Note: There are THREE Sections in this paper i.e. A, B & C. Attempt Section-A and return it to the Superintendent within the given time. No marks will be awarded for cutting, erasing and overwriting. Mobile Phones are strictly prohibited in Examination Hall.

Time: 20 minutes — **Section-A** — **Marks: 15**

QNo.1 Select the correct option and shade (A,B,C,D) in the given Bubble Answer Sheet.

i. In which triangle the perpendicular bisector of the base passes through its vertex angle?
A- Right angled B- Scalene C- Isosceles D- Acute angled

ii. The point of intersection of the bisectors of the angles of a triangle is equidistant from the _____ of the triangle.
A- Sides B- Medians C- Altitudes D- Vertices

iii. $(-a)^4 \times (-a)^3 =$ _____
A- $-a^{12}$ B- a^{12} C- $-a^7$ D- a^7

iv. 9473.2 in scientific notation can be written as _____.
A- 947.32×10^2 B- 947.32×10^3 C- 94.732×10^3 D- 9.4732×10^3

v. $(a+b)^2 - (a-b)^2 =$ _____
A- $a^2-4ab+2b^2$ B- $a^4 - b^4$ C- $2(a^2+b^2)$ D- $4ab$

vi. The characteristic of log 0.0435 is _____.
A- -1 B- -2 C- 1 D- 2

vii. $a^3 + b^3 =$ _____
A- $(a-b)(a^2+ab+b^2)$ B- $(a+b)(a^2+ab+b^2)$ C- $(a+b)(a^2+ab-b^2)$ D- $(a+b)(a^2-ab+b^2)$

viii. LCM of $a^2 - a + 1$ and $a^3 + 1$ is _____.
A- $a + 1$ B- $a^2 - a + 1$ C- $a^2 + a + 1$ D- $a^3 + 1$

ix. The solution set of $|x - 4| = 3$ is _____.
A- {1, -7} B- {-1, 7} C- {-1, -7} D- {7, 1}

x. The point (-3, 8) is located in quadrant _____.
A- IV B- III C- II D- I

xi. The only point lying on both axes is _____.
A- (1,0) B- (0,1) C- (-1,0) D- (0,0)

xii. The diagonal of _____ does not divide it into two congruent triangles.
A- Rectangle B- Square C- Parallelogram D- Trapezium

xiii. Sum of the measure of interior angles of a quadrilateral is _____.
A- 1 right angle B- 2 right angles C- 3 right angles D- 4 right angles

xiv. The determinant of the matrix $\begin{bmatrix} 4 & -2 \\ 5 & 13 \end{bmatrix}$ is equal to _____.
A- -42 B- -62 C- 42 D- 62

xv. $\sqrt{-(-9)^2} =$ _____
A- 9 B- $9i$ C- $9 + i$ D- $9 - i$

Note: Time allowed 2:40 hours

SECTION – B

Marks: 36

Q2: Answer any NINE parts. Each part carles equal marks.

i. If $A = \begin{bmatrix} -2 & 3 \\ 2 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 1 & -1 \\ 2 & 4 \end{bmatrix}$ is $AB = BA$

ii. Solve $x + 2y = 1$, $2x + 3y = 5/2$ by inversion method.

iii. Simplify: $\dfrac{2^{p+1} \cdot 3^{2p-q} \cdot 5^{p+q} \cdot 6^{q}}{6^{p} \cdot 10^{q+2} \cdot 15^{p}}$

iv. Simplify: $\dfrac{784.6 \times 0.0431}{28.23}$ by logarithm.

v. Find the values of $a^2 + b^2 + c^2$ when $a + b + c = 5$ and $ab + bc + ca = -2$

vi. If $x = 2 - \sqrt{3}$, find the values of $x^4 + \dfrac{1}{x^4}$

vii. Factorize $10y^2 - 3y - 1$

viii. Factorize $a^3 + (c + d)^3$

ix. Find the square root of $16x^4 - 24x^3 + 25x^2 - 12x + 4$

x. Solve the equation $7 - \sqrt{2b} = 3$

xi. Find the solution set of $4|5x - 2| + 3 = 11$

xii. Find HCF of $x^2 - x - 6$ and $x^2 - 2x - 3$

SECTION – C

Marks: 24

Note: Attempt any THREE of the following. All questions carry equal marks.

Q3: Prove that A(-2, 0), B(6, 0), C(6, 6), D(-2, 6) are vertices of a rectangle.

Q4: If two angles of a triangle are congruent, then the sides opposite to those angles are congruent.

Q5: The right bisector of the sides of a triangle are concurrent.

Q6: Construct ΔUVW, draw their perpendicular bisector and verify their concurrency.
$m\overline{UV} = 7$cm, $m\overline{VW} = 6.5$cm and $m\overline{WU} = 5.8$cm