ZIAUDDIN UNIVERSITY EXAMINATION BOARD

Total Time 3 hours

Total Marks:

75 Class: X **MODEL PAPER EXAMINATION 2025**

Time Allowed: 20 minutes **SUBJECT: MATHEMATICS**

Q1: **(SECTION "A")** **Marks: 15**

Note: Attempt all questions from section 'A'. Each question carries **ONE** mark.

1 If 1, 9, x and 45 are in proportion, then $x =$

A. 27 B. 0.2 C. 5 D. 45

2 An improper fraction can be reduced into a proper fraction by:

A. Addition B. Multiplication C. Subtraction D. Division

3 The angle between the radial segment and tangent at its outer end pointy is:

A. 45° B. 60° C. 90° D. 120°

4 If m denotes the number of rows and n denotes the number of column such that m=n, then matrix is called _____matrix

A. Rectangular B. Equal C. Square D. null

5 The A.M. of (0, 90, *k*, 10, 100) is 40, then *k*=

A. 0 B. 90 C. 10 D. 100

6 If the ratio of two corresponding sides of similar triangles is 5:7, then the ratio of their areas is:

A. 5:7 B. 7:5 C. 25:7 D. 25:49

7 The fourth proportional to 3, 5, 12 is:

A. 15 B. 20 C. 36 D. 60

8 Cosec$\boldsymbol{\theta}$.Sin$\boldsymbol{\theta}$ =

A. 1 B. 0 C. -1 D. 2

9 The angle 135° in radians is:

A. $\frac{5\pi}{4}$ B. $\frac{3\pi}{4}$ C. $\frac{2\pi}{4}$ D. 135π

10 A line intersecting a circle at 2 points is called a:

A. Chord B. Diameter C. Secant D. Tangent

11 Which one is a function?

A. {(2,5),(2,7),(3,8)} B. {(6,7),(7,6),(6,8)} C. {(0,5),(6,0),(5,6)} D. None of these

12 $\text{Cosec}^2\boldsymbol{\theta} - 1 =$_____

A. $\text{Cos}^2\,\boldsymbol{\theta}$ B. $\text{Cot}^2\,\boldsymbol{\theta}$ C. $\text{Sin}^2\,\boldsymbol{\theta}$ D. $\text{Sec}^2\,\boldsymbol{\theta}$

13 Diagonal of a rectangle measures 6.5cm. If its width is 2.5cm, its length is:

A. 6cm B. 9cm C. 12cm D. 4cm

14 Tangents drawn at the end points of the diameter of a circle are:

A. Perpendicular B. Intersecting C. Parallel D. None of these

15 If $A \supseteq B$, then $A \cup B =$

A. B B. θ C. $\mathbb{U}$ D. A

END OF SECTION A

ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

Total Time 3 hours
Total Marks: 75

Class: X **MODEL PAPER EXAMINATION 2025**
Time: 2 hours 40 minutes **SUBJECT: MATHEMATICS (SECTION "B" AND SECTION "C")** **Total Marks 60**
SECTION "B" (SHORT ANSWER QUESTIONS) **30 Marks**

Q2: Answer any **SIX** questions from this section.

i. *If* U = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}, A = {1, 3, 5, 7, 9} and B = {2, 4, 6, 8}, prove that $(A \cup B)' = A' \cap B'$

ii. Solve the following equation by using componendo-dividendo theorem.

$$\frac{\sqrt{(x+1)\ +\ (x-1)}}{\sqrt{(x+1)-\ (x-1)}} = \frac{1}{2}$$

iii. Resolve into partial fraction

$$\frac{5x^2 - 30x + 44}{(x+3)^3}$$

iv. Show that tangents drawn at the ends of a chord in a circle make equal angles with the chord.

v. Find remaining trigonometric functions /ratios if sec **θ** = cosec **θ** = $\sqrt{2}$ and **θ** lies in first quadrant.

vi. If the length of the segment joining two congruent circles touching externally is 12cm, find their radii and circumferences.

vii. Prove that $\frac{cot\boldsymbol{\theta}+\text{cosec}\boldsymbol{\theta}}{sin\boldsymbol{\theta}+\tan\boldsymbol{\theta}} = \text{cosec}\boldsymbol{\theta}\cot\boldsymbol{\theta}$

viii. If $\begin{bmatrix} a & b \\ c & d \end{bmatrix} + \begin{bmatrix} 3 & -1 \\ 1 & 0 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, then find a, b, c and d

ix. Determine the value of in the following quadratic equation such that it will make the roots equal

$$9x^2 + mx + 16 = 0$$

x. A 25-meter-long ladder is leaning against a vertical wall, with its base positioned 7 meters away from the wall. How high will the ladder reach on the wall?

SECTION "C" DETAILED ANSWER QUESTIONS **30 Marks**

Q3: Attempt any **THREE** questions from this section.

i. Find the invers of A= $\begin{bmatrix} 1 & 0 & 1 \\ -4 & 1 & -1 \\ 6 & -2 & 1 \end{bmatrix}$ by adjoint method.

ii. If a line segment intersects the two sides of a triangle in the same ratio, then it is parallel to the third side. Prove it.

iii. In a race, 8 runners completed the race in the following times (in minutes)

Minutes	10-12	13-15	16-18	19-21	22-24
Runners	2	3	1	1	1

(a) Find the Mean.

(b) Find the Median

vi. Solve the following systems of equations:

$\frac{4}{x} + \frac{3}{y} = 2$ and $4x + 3y = 25$

v. Find A.M., G.M., H.M., Median and Mode of 51, 52, 52, 52, 54, 55, 57, 58, 60, 61, 62, 64.

END OF PAPER