

BOARD OF SECONDARY EDUCATION, KARACHI

Secondary School Certificate (S.S.C.) Annual Examination

Class X (Science Group)	Mathematics	2025	English Medium
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Max. Marks: 75 | Time: 3 Hours

SECTION "A" — MULTIPLE CHOICE QUESTIONS (MCQs) Marks: 15

NOTE: (i) Attempt all the Questions of this Section. (ii) Do not copy down the part questions. Write only the answer against the proper number of the Question and its part according to the question Paper. (iii) Each question carries 1 Marks

1. Choose the correct Answer for each from the given question:

(i)	Which one is subset of N : ☆ Z ☆ Q ☆ E ☆ P
(ii)	If $A = \{1, 2, 3, 4\}$ and $B = \{2, 4, 6\}$, then $A \Delta B =$. ☆ $\{1, 2\}$ ☆ $\{6\}$ ☆ $\{1, 3\}$ ☆ $\{1, 3, 6\}$
(iii)	If $a : b = c : d$ then according to alternator property: ☆ $\frac{a}{b} = \frac{c}{d}$ ☆ $\frac{a+b}{b} = \frac{c+d}{c}$ ☆ $\frac{b}{a} = \frac{d}{c}$ ☆ $\frac{a}{c} = \frac{b}{d}$
(iv)	The order of matrix $\begin{bmatrix} 1 & 5 & 8 \end{bmatrix}$ is: ☆ 3×1 ☆ 1×2 ☆ 1×3 ☆ 3×3
(v)	If two circle of radii $5cm$ and $2cm$ touch each other internally, then the distance between their centres is: ☆ $5cm$ ☆ $10cm$ ☆ $3cm$ ☆ $2cm$
(vi)	An improper fraction can be reduced into proper fraction by: ☆ Addition ☆ Multiplication ☆ Subtraction ☆ Division
(vii)	The Arithmetic mean of $\{0, 90, k, 10, 100\}$ is 40 then $k =$: ☆ 0 ☆ 90 ☆ 10 ☆ 100
(viii)	Which of the following are the sides of a right angled triangle: ☆ 3, 4, 5 ☆ 2, 3, 4 ☆ 5, 6, 7 ☆ 4, 5, 6
(ix)	In a right angled triangle, the greatest angle is: ☆ 100° ☆ 90° ☆ 80° ☆ 110°
(x)	A circle is an example of a curve: ☆ Simple and closed ☆ Simple and open ☆ Non Simple and closed ☆ Non Simple and open
(xi)	Diameter divides the circle into: ☆ Two parts ☆ Three parts ☆ Four parts ☆ None of these
(xii)	Two equilateral triangles are also: ☆ Congruent ☆ Similar ☆ Proportional ☆ Equivalent
(xiii)	A circle which touches all the sides of a triangle is called: ☆ Circum circle ☆ In-circle ☆ Ex-circle ☆ None of these
(xiv)	The symbol of similarity of triangle is: ☆ $=$ ☆ $\cong$ ☆ $\sim$ ☆ $\leftrightarrow$
(xv)	$\operatorname{Cosec} \theta \cdot \sin \theta =$: ☆ 1 ☆ 0 ☆ -1 ☆ None of these

SECTION "B" (Short Answer Question) Marks: 30

NOTE: Answer any SIX (06) questions from this section. All questions carry equal marks.

2.	If $A = \{1, 2, 3, 4\}$, then find the power set A .	
3.	If $a : b = c : d = e : f$ then show that: $\frac{a^2b + c^2d + e^2f}{ab^2 + cd^2 + ef^2} = \frac{a + c + e}{b + d + f}$	
4.	Prove that $\sqrt{\frac{1 + \cos \theta}{1 - \cos \theta}} = \frac{\sin \theta}{1 - \cos \theta} \quad (\cos \theta \neq 1)$	
5.	If two chords of a circle are congruent, then they will be equidistant from the centre. Prove it.	
6.	A ladder makes an angle of 60° with the ground and reaches a height of $6cm$ on the wall. Find the length of the ladder.	
7.	Resolve $\frac{11 - 3x}{(x - 1)(x + 3)}$ into partial fraction.	
8.	If the angles subtended by two chords of a circle (or congruent circles) at the centres (corresponding centres) are equal, the chords are equal, Prove it.	
9.	Find the value of m , if the roots of the equation $x^2 - 5x + 2m = 0$ differ by 1.	

10.	The marks obtained by students in a subject (out of 50) are given in the following grouped table. Find Mode. <table><tr><th>Marks</th><th>25 - 29</th><th>30 - 34</th><th>35 - 39</th><th>40 - 44</th><th>45 - 49</th></tr><tr><td>No. of Students</td><td>9</td><td>18</td><td>35</td><td>17</td><td>5</td></tr></table>	Marks	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	No. of Students	9	18	35	17	5	
Marks	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49									
No. of Students	9	18	35	17	5									
11.	If two arcs of a circle are congruent then the corresponding chords are equal. Prove it. OR Find variance of number of absentees in a class for last seven days: 3, 5, 3, 2, 4, 1, 8													

SECTION 'C' (Detailed - Answer Question) (30)

NOTE: Attempt any **THREE (03)** questions from this Section. All questions carry equal marks.

12.	Find the inverse of the matrix by adjoint method: $A = \begin{vmatrix} 1 & 0 & 1 \\ -4 & 1 & -1 \\ 6 & -2 & 1 \end{vmatrix}$	
13.	If two triangles are similar, the measures of their corresponding sides are proportional. Prove it.	
14.	In a right-angled triangle, the squares of the length of hypotenuse is equal to sum of the square of the length of the other two sides. Prove it.	
15.	Draw an inscribed circle of $\triangle ABC$ in which $\overline{mAB} = 7\text{cm}$, $m\angle B = 60^\circ$ and $\overline{mBC} = 6\text{cm}$. (Also write steps of construction)	
16.	The internal bisectors of an angle of a triangle divides the sides opposite to it in the ratio of the sides containing the angle. Prove it.	
16.	(OR) If two circles touch internally, the distance between their centres is equal to the difference of their radii. Prove it.	

Notes on this reproduction

- Typeset by Tayarri from the printed question paper; no answer key is reproduced. The source sheet is pre-ticked by the publisher, so options are given unmarked.
- Source sheet is a guide reprint: no board monogram and no paper code are printed.
- Neither section prints per-question marks; the marks column is left empty. Section B is six of eleven for 30, Section C three of five for 30, plus 15 for the MCQs.
- Section C numbers its last two entries **16.** and **16. (OR)** — the alternative is printed as a separate numbered line rather than under an OR rule, as in the other years. Reproduced as printed.
- Unit discrepancy.** Section B question 6 gives the ladder's height as 6cm; the Urdu-medium sheet reads 6 metres, and 6 cm makes no sense for a ladder. The figure is reproduced as printed here — the Urdu sheet is the one to trust.
- MCQ (ii) drops the set name B ("If $A = \{1, 2, 3, 4\}$ and $= \{2, 4, 6\}$ ") though its options answer for $A \Delta B$; the Urdu sheet prints B . Reproduced as printed.
- Board spellings kept verbatim: "radii" (radii), "alternator property" (the 2024 sheet says alternando), "chords" for chords throughout Section B, and "makes on angle".