

Answer to this Paper must be written on the paper provided separately.

You will not be allowed to write during the first 15 minutes

This time is to be spent in reading the question paper.

The time given at the head of this paper is the time allowed for writing the answers.

All questions in Section A are compulsory.

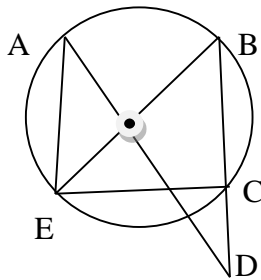
Answer any **FOUR** from Section B

Section A

Question 1

a. Find x and y if: $P = \begin{pmatrix} 3 & y \\ x & 6 \end{pmatrix}$, $Q = \begin{pmatrix} 2 & -3 \\ 0 & 8 \end{pmatrix}$ and $R = \begin{pmatrix} 2 & 5 \\ 4 & 10 \end{pmatrix}$ and $PQ = 3R$ [3]

- b. In the figure, O is the centre of the circle. $\angle AOB = 70^\circ$, and $\angle BEC = 50^\circ$.
Find $\angle AEB$, $\angle D$ and $\angle DAE$ [3]



- c. From the following data find (i) Mean (ii) median and (iii) Lower quartile [4]

Age in years	9	10	11	12	13
Number of boys	5	7	8	3	2

Question 2.

- a. A cylindrical jug of radius 8 cm and height 10 cm is filled with orange juice. It is then poured into small conical cups of radius 2 cm and height 6 cm. Find the number of cups that can be filled. [3]
- b. Find the values of a and b if $(x - 1)$ is a factor of: $ax^3 - x^2 + bx + 6$ and when the polynomial is divided by $(x - 3)$ the remainder is 30. [3]
- c. Find the sum of the A.P 54, 52, 50,....., 10 [4]

Question 3.

a. In ΔABC , $A = (4, -3)$ and centroid $G = (2, 1)$. Find the coordinates of the midpoint of BC [3]

b. Prove the identity: $\frac{\tan^2 A}{(\sec A - 1)^2} = \frac{1 + \cos A}{1 - \cos A}$ [3]

c. Solve the linear inequation and represent it on a number line:

$$-2 < \frac{1}{2} - \frac{3x+1}{4} \leq \frac{3}{8}, x \in \mathbb{R}$$
 [4]

Question 4

a. If a, b, c, d are in proportion prove that $\frac{ab+cd}{ab-cd} = \frac{a^2+c^2}{a^2-c^2}$ [3]

b. Solve $3x^2 - 2x - 2 = 0$ and give your answer correct to three significant places [3]

c. Mrs. Reena went to a department stores bought the following [4]

S. No	Items	Price	Quantity	Discount	GST
1	Almonds	800/-per kg	1kg	10%	12%
2	Pulses	125/- per kg	8kg	--	0%
3	Watch	2000	1	5%	28%

- Find the CGST by her on the items
- Find the total bill amount including GST paid by her.