

BOARD OF SECONDARY EDUCATION (TELANGANA)
SUMMATIVE ASSESSMENT – II
MATHEMATICS MODEL PAPER
PAPER – II (ENGLISH VERSION)

Time: 2 hrs. 45 mins.

PART A & B

Maximum Marks: 40

INSTRUCTIONS:

1. In the time duration of 2 hours 45 minutes, 15 minutes is allotted to read and understand the question paper.
2. Answer the questions under PART – A on a separate answer book.
3. Write the answers to the questions under PART – B on the question paper itself and attach it to the answer book of PART – A.

Time: 2 hrs.

PART A & B

Marks: 35

Note:

- i) Answer all the questions from the given three Sections I, II and III of PART – A.
- ii) In Section – III, every question has Internal Choice, Answer any one alternative.

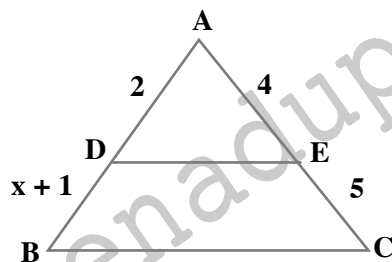
SECTION – I

Note: i) Answer ALL the questions.

ii) Each question carries ONE Mark.

7 × 1 = 7

1. Find the curved surface area of the cylinder whose height is twice the radius of its base and the diameter of the base of the cylinder is 6 cm.
2. There are 3 green balls, 2 orange balls and 5 red balls in a bag. Find the probability of drawing a green ball at random from the bag.
3. Express $\sec \theta$ in terms of $\operatorname{cosec} \theta$.
4. In the figure $BC \parallel DE$. Find the value of 'x'.



5. What do you understand by cumulative frequency?
6. Draw the possible relations between the circle and a line drawn in a plane.
7. A boy observed the top of the building at an angle of 60° . If the height of the building is 20 m. Draw the figure to find the distance between the foot of the tower and the point of observation.

SECTION – II

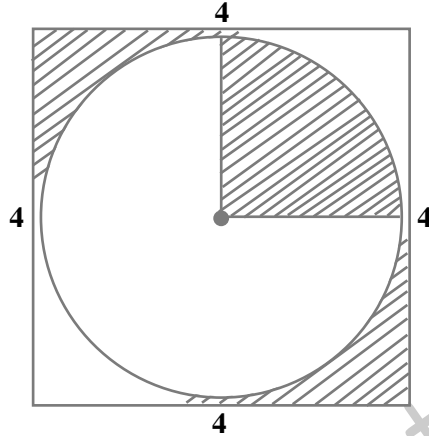
Note: i) Answer ALL the questions.

ii) Each question carries TWO Marks.

6 × 2 = 12

8. Find the value of $\sin^2 60^\circ + \sec^2 30^\circ + \operatorname{cosec}^2 45^\circ$.

9. In the adjacent figure, Find the area of the shaded region.



10. Why do you think the value of $\cos \theta$ decreases when θ increases from 0° to 90° ? Explain.
11. Write the formula to find mode of a frequency distribution table. Explain the terms in 'd'.
12. If $P(E) = \frac{5}{12}$ where E is the event of drawing a defective pen from a box of 144 pens that has few defective pens along with good ones. Find defective and non-defective pens in the box.
13. How many cubes of 2 cm long can be made by melting a sphere whose surface area is 616 sq.cm.

SECTION – III

Note: i) Answer ALL the questions.

ii) Each question carries FOUR Marks.

iii) Each question has an Internal Choice.

$4 \times 4 = 16$

14. a) Find the median of the following frequency distribution table.

C.I.	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
f	12	15	22	13	8

(OR)

- b) A wall 24 m long, 0.4 m wide and 6 m height is constructed with the bricks of dimensions 25 cm, 16 cm and 10 cm as then length, breadth and height respectively. If the mortar occupies $\left(\frac{1}{10}\right)^{\text{th}}$ of the volume of the wall then find the number of bricks used in construction the wall.

15. a) Construct a pair of tangents that are included 60° to each other from an external point 'P' to a circle of radius 5.2 cm.

(OR)

- b) Draw ogive curves to the following frequency distribution table and hence find median from the graph.

C.I.	1 – 10	11 – 20	21 – 30	31 – 40	41 – 50	51 – 60
f	20	32	46	50	38	22

16. a) The top of the temple is observed from two different points A and B on the either side of the temple the angle of elevation from point A is 30° and it is observed that the angle of elevation from point B is 60° . If the height of the temple is 30 m find the distance between two men.

(OR)

- b) One card is selected from a well-shuffled deck of cards. Find the probability that the card selected is a

i) A face card

ii) An ace

iii) A queen of red colour

iv) Red colour spade

17. a) Prove that $\frac{\sin \theta - \cos \theta + 1}{\sin \theta + \cos \theta - 1} = \sec \theta + \tan \theta$

(OR)

- b) If D and E are the points on sides PQ and PR respectively of a triangle PQR such that $DE \parallel QR$ and $DQ = ER$. Show that ΔPQR is an Isosceles triangle.

