

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

Time: 2 hrs. 45 mins.

PART – A & B

Maximum Marks: 40

**INSTRUCTIONS:**

- i) In the time duration of 2 hrs. 45 mins. 15 minutes of time is allotted to read and understand the question paper.
- ii) Answer the questions under PART – A in separate answer book.
- iii) 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 Hours

PART – A

Marks: 35

**INSTRUCTIONS:**

- i) PART – A comprises of three Sections I, II, III.
- ii) All the questions are compulsory.
- iii) There is no overall choice. However, there is an internal choice to the questions under Section – III.

**SECTION – I**

**INSTRUCTIONS:**

- i) Answer ALL the questions.
- ii) Each question carries ONE Mark.  $7 \times 1 = 7$
1. The areas of two similar triangles are  $100 \text{ cm}^2$  &  $81 \text{ cm}^2$ . Then find the ratio of their corresponding heights.
2. Rajesh said that, tangent lines at the end points of a diameter of a circle are parallel. Justify your answer.
3. Two dice are thrown simultaneously. Find the probability of getting the sum as a odd number.
4. Base area of the prism is  $25 \text{ cm}^2$ , and its height is 10 cm then find the volume.
5. Find the value of  $(1 - \cos^2 A) \cdot \operatorname{cosec}^2 A$ .
6. Write the formula of surface area of sphere and explain the terms.
7. Mean of 5, 6, x, 9, y, 10 is 6. If we find out the value  $x + y$ , how much?

SECTION - II

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries TWO Marks. 6 × 2 = 12
- 8. If  $\sin\theta + \sin^2\theta = 1$  then find  $\cos^2\theta + \cos^4\theta$ .
- 9. From the cumulative distribution table,  $l = 24.5$ ,  $h = 4$ ,  $f_0 = 14$ ,  $f_1 = 14$ ,  $f_2 = 15$  then find the mode by using formula.
- 10. The angle of depression from the top of a tower 10 m height, at a point on the ground is  $30^\circ$ . Then find the distance of the point from the top.
- 11. In a circle of radius 7 cm, an arc subtends an angle of  $60^\circ$  at the centre. Find the area of a sector.
- 12. A rectangular sheet length is 22 m. & width is 10 m. If we formed cylinder with this sheet find the lateral surface area and volume.
- 13. Write any two measures of right angle triangle and write the reason.

SECTION - III

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries FOUR Marks.
- iii) Each question has Internal Choice. 4 × 4 = 16
- 14. A) Find the median of the following distribution table.

C.I	0-20	20-40	40-60	60-80	80-100
f	5	8	12	9	6

(OR)

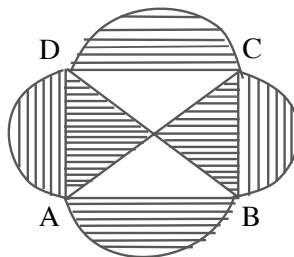
B) Show that  $\sqrt{\frac{\sec\theta + 1}{\sec\theta - 1}} + \sqrt{\frac{\sec\theta - 1}{\sec\theta + 1}} = 2 \operatorname{cosec}\theta$

- 15. A) An helicopter at an altitude of 200 mts. Finds that two boats are sailing towards it in the same direction. The angle of depression of the boats as observed from the aeroplane are  $45^\circ$  &  $60^\circ$  respectively. Find the distance between two boats.

(OR)

B) In triangle ABC,  $\angle B = 90^\circ$ ,  $BC + AB = 17$  cm,  $BC - AB = 7$  cms. Find  $\sin A$  &  $\cos C$ .

- 16. A) ABCD is a square. Its side is 14 cm. Then find the shaded part of the figure.



(OR)

B) Cards numbered 1 to 25 are put in a box. A card is drawn at random from this box. Find the probability that the number on the drawn card is

- i) Prime number
- ii) It is divisible by 4 & 5
- iii) Factors of 16
- iv) Multiples of 3

17. A) Construct a triangle ABC, if  $AB = 6.5$  cm,  $\angle B = 50^\circ$ ,  $BC = 5.5$  cm. Draw the similar triangle whose sides are  $\frac{2}{3}$  of the corresponding triangle.

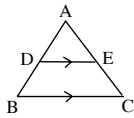
(OR)

B) Draw a circle of radius = 5.5 cm. Draw a tangent to this circle making an angle  $60^\circ$  with a line passing through the centre.

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries  $\frac{1}{2}$  Mark.
- iii) Answers are to be written in question paper only.
- iv) Marks will not be awarded in any case of any over writing and rewriting or erased answers.
- v) Write the CAPITAL LETTER (A, B, C, D) showing the correct answer for the following questions in the brackets provided against them.

$$10 \times \frac{1}{2} = 5$$

18.  $\sin \theta \cdot \sin (90^\circ - \theta) - \cos \theta \cdot \cos (90^\circ - \theta) =$  ( )  
 A) 0                                      B) 1                                      C)  $\sin \theta$                                       D)  $\cos \theta$
19. In  $\Delta ABC$ ,  $DE \parallel BC$ ,  $AD = 8$  cm,  $AB = 12$  cm,  $AE = 12$  cm, then  $CE =$  ( )  
 A) 3 cm                                      B) 6 cm  
 C) 4 cm                                      D) 12 cm
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20. Mean of first 'n' natural numbers is 4 then  $n =$  ( )  
 A) 6                                      B) 10                                      C) 8                                      D) 7
21. If drawn 'A' letter from 'PRATIBHA' then probability ( )  
 A)  $\frac{1}{6}$                                       B)  $\frac{2}{7}$                                       C)  $\frac{1}{4}$                                       D)  $\frac{1}{5}$
22. Which of the following is false statement? ( )  
 A)  $0 \leq P(A) \leq 1$                                       B)  $P(\bar{A}) = 1 - P(A)$   
 C) Impossible probability is zero                                      D)  $P(A) = -0.6$
23. Which of the following is correct? ( )  
 A) Lateral surface area of cone =  $\pi rh$                                       B) Total surface area of a hemisphere is  $4\pi r^2$   
 C) Total surface area of a cube =  $6a^2$                                       D) Volume of a cuboid is  $l^2 b^2 h^2$
24. If  $\sec \theta + \tan \theta = \frac{1}{5}$  then  $\sec \theta - \tan \theta =$  ( )  
 A) 5                                      B)  $\frac{1}{5}$                                       C) 1                                      D) 0
25. Angle in a minor segment in a circle is ( )  
 A) Acute angle                                      B) Right angle                                      C) Obtuse angle                                      D)  $0^\circ$
26.  $\tan B = \sqrt{3}$ ,  $\tan A = \frac{1}{\sqrt{3}}$  then A & B are ( )  
 A)  $60^\circ, 30^\circ$                                       B)  $60^\circ, 45^\circ$                                       C)  $45^\circ, 60^\circ$                                       D)  $30^\circ, 60^\circ$
27. If  $\sin \theta = \frac{3}{5}$  then  $\cot \theta =$   
 A)  $\frac{3}{4}$                                       B)  $\frac{4}{5}$                                       C)  $\frac{4}{3}$                                       D)  $\frac{5}{4}$

PART - B ANSWERS

- 18-A; 19-B; 20-D; 21-C; 22-D; 23-C; 24-A; 25-C; 26-D; 27-C.