

BOARD OF SECONDARY EDUCATION (TELANGANA)
SUMMATIVE ASSESSMENT – I
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 hrs.

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.

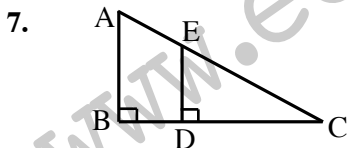
SECTION – I

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries ONE mark.

$7 \times 1 = 7$

1. 6th term is the median in the given data. Then how many terms in the given data?
2. If $\operatorname{cosec}^2 \theta - \cot^2 \theta = 1$ then write $\cot \theta$ in $\operatorname{cosec} \theta$.
3. What would you say about, if two equilateral triangles area?
4. Find the value of $\tan 20^\circ \cdot \tan 25^\circ \cdot \tan 65^\circ \cdot \tan 70^\circ$.
5. If $\tan \theta + \cot \theta = x^2$ then $\tan^2 \theta + \cot^2 \theta = ?$
6. Write Pythagoras theorem.



In the figure $DC = 3$ cm, $BC = 8$ cm, $DE = 4.5$ cm then find AB ?

SECTION - II

INSTRUCTIONS:

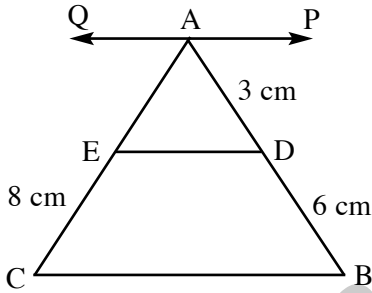
- i) Answer ALL the questions.
- ii) Each question carries TWO marks.

6 × 2 = 12

8. Write all the trigonometric ratio's if $\tan \theta = \frac{5}{12}$.

9. $2 \tan^2 45^\circ - \left(\frac{\sin 35^\circ}{\cos 55^\circ}\right)^2 + \left(\frac{\cos 55^\circ}{\sin 35^\circ}\right)^2 = ?$

10.



PAQ // DE // BC, AD = 3 cm, DB = 6 cm, EC = 8 cm then find AE.

- 11. Write the formula of mean in step. Deviation method and explain terms.
- 12. Mean of a + b terms in a given data is a – b then find the sum of terms.
- 13. In ΔABC , $\angle B = 90^\circ$, $\angle C = 30^\circ$, AC = 8 cm then find AB & BC.

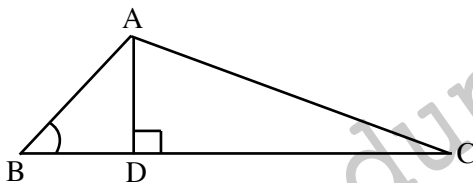
SECTION - III

INSTRUCTIONS:

- i) Answer ALL the questions.
- ii) Each question carries FOUR marks.
- iii) Each question has Internal Choice.

4 × 4 = 16

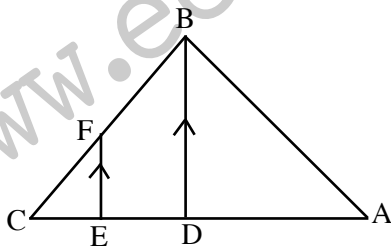
14. a)



In ΔABC , $\angle B$ is acute angle & $AD \perp BC$ then show that $AC^2 = AB^2 + BC^2 - 2 BC \cdot BD$

(OR)

b)



In ΔABC , $CD = DA$ & $CE = \frac{1}{5} CA$, If $EF \parallel BD$ then find $\frac{CF}{FB}$.

15. a) Prove that $\frac{1 + \sin \alpha}{\cos \alpha} + \frac{\cos \alpha}{1 + \sin \alpha} = 2 \sec \alpha$.

(OR)

b) Show that $\frac{\sin A}{1 + \cos A} + \frac{\sin A}{1 - \cos A} = 2 \operatorname{cosec} A$

16. a) Mean = 50 of the following frequency distribution table. Find x & y, $\Sigma f = N = 120$.

CI	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100
f	17	x	32	y	19

(OR)

b)

CI	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79
f	10	12	18	13	17	8

Find median.

17. a)

CI	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70
f	2	4	8	6	4	6

(OR)

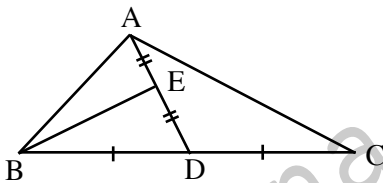
b) Construct the ΔABC of $AB = 6$ cm, $BC = 4$ cm, $CA = 4.5$ cm. Then construct the triangle similar to it whose sides are $\frac{2}{3}$ of the corresponding sides of the first triangle.

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. In ΔABC , AD is median, BE is median of ΔABD , then $\Delta ABE : \Delta ABC =$ ()



- A) 1 : 1 B) 1 : 2 C) 1 : 3 D) 1 : 4

19. a, b, c are sides of a triangle, $b^2 = a^2 + c^2$ then $\angle B =$ ()

- A) right angle B) acute angle
C) obtuse angle D) None

20. If $(\tan\theta + 1)(\tan\theta - 1) = 0$ then $\theta =$ ()

- A) 30° B) 45° C) 60° D) 90°

21. $\tan \theta =$ ()

- A) $\frac{\operatorname{cosec} \theta}{\sqrt{1 + \operatorname{cosec}^2 \theta}}$ B) $\frac{1}{\sqrt{\operatorname{cosec}^2 \theta - 1}}$
C) $\frac{\operatorname{cosec} \theta}{\sqrt{1 - \operatorname{cosec}^2 \theta}}$ D) $\frac{1}{\operatorname{cosec} \theta}$

22. $\frac{1 - \tan^2 \theta}{\cot^2 \theta - 1} =$ ()

- A) $\sec^2 \theta$ B) $\cot^2 \theta$ C) $\tan^2 \theta$ D) $\sin^2 \theta$

23. Ratio of ΔABC & ΔDEF is 9 : 25 then ratio of corresponding sides ()

- A) 3 : 5 B) 25 : 9 C) 5 : 3 D) 9 : 25

24. Mean of first 'n' natural numbers ()

- A) $\frac{n+1}{2}$ B) $\frac{n}{2}$ C) $n + \frac{1}{2}$ D) $\frac{n-1}{2}$

25. $\frac{x}{5}, x, \frac{x}{4}, \frac{x}{2}, \frac{x}{3}$ ($x > 0$) median is 8 then $x =$ ()

- A) 8 B) 16 C) 24 D) 32

26. Mean of 7, 6, 8, x, 14, y is 9 then ()
A) $x + y = 21$ B) $x + y = 19$ C) $x - y = 19$ D) $x - y = 21$
27. $\frac{\sin \theta \cdot \sin (90 - \theta)}{\tan \theta - 1} - 1 =$ ()
A) $\sin^2 \theta$ B) $\cos^2 \theta$ C) $-\sin^2 \theta$ D) $-\cos^2 \theta$

PART - B

ANSWERS

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

Writer: P. Venugopal