CAREERS360

TELANGANA SSC MATHEMATICS (PAPER II)

Question Paper

This Question Paper contains 4 Printed Pages.

New Syllabus

16E(A)

MATHEMATICS, Paper - II

(English version)

Parts A and B

Time : 2 hrs. 45 min.] ***[Maximum Marks : 40***

Instructions :

1. *In the time duration of 2 hours 45 minutes, 15 minutes of time 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**.*

Part - A

Time : 2.15 Hours ***Marks : 35***

Note :

1. *Answer **all** the questions from the given **three** sections I, II and III of **Part-A**.*
2. *In section - III, every question has internal choice. Answer **any one** alternative.*

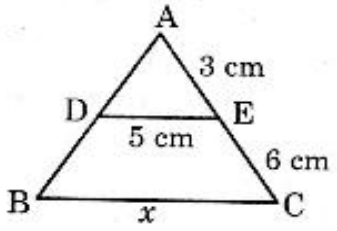
SECTION - I

(Marks : 7×1=7)

NOTE : *(i) Answer **all** the questions.*

*(ii) Each question carries **1** mark.*

1. In the given figure, $\Delta ABC \sim \Delta ADE$, then find the value of 'x'.



2. Find the probability of getting a sum of the numbers on them is 7, when two dice are rolled at a time.

3. If $\tan\theta = \sqrt{3}$ (where 0 is acute), then find the value of $1 + \cos 0$.

4. "A conical solid block is exactly fitted inside the cubical box of side 'a', then the volume of conical solid block is $\frac{4}{3}\pi a^3$." Is this statement true ? Justify your answer.

5. If the surface area of a hemisphere is 'S', then express 'r' in terms of 'S'.

6. Write the formula to find the median for grouped data and explain each term.

7. "If the angle of elevation of Sun increases from 0° to 90°, then the length of shadow of a tower decreases." Is this statement true ? Justify your answer.

SECTION - II

(Marks : 6×2=12)

NOTE : *(i) Answer **all** the questions.*
*(ii) Each question carries **2** marks.*

8. Prove that $\sqrt{\frac{1-\sin\theta}{1+\sin\theta}} = \sec\theta - \tan\theta$, (where θ is acute).

9. ABC is an isosceles triangle and $\angle B = 90°$, then show that $AC^2 = 2AB^2$.

10. Find the volume and surface area of a sphere of radius 42 cm $\left(\pi = \frac{22}{7}\right)$.

11. If $\tan(A+B) = 1$, and $\cos(A-B) = \frac{\sqrt{3}}{2}$, $0° < A+B < 90°$ and $A > B$; find A and B.

12. A solid metallic ball of volume 64 cm^3 melted and made into a solid cube. Find the side of the solid cube.

13. A boat has to cross a river. It crosses the river by making an angle of 60° with the bank of the river due to the stream of the river and travels a distance of 450 m to reach the another side of the river. Draw the diagram for this data.

SECTION - III

(Marks : 4×4=16)

NOTE :

1. *Answer **all** the following questions.*
2. *In this section, every question has internal choice to answer.*
3. *Each question carries **4** marks.*

14. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball is double that of red ball, find the number of blue balls in the bag.

OR

Evaluate : $$\frac{\tan^2 60° + 4\cos^2 45° + 3\sec^2 30° + 5\cos^2 90°}{\text{cosec } 30° + \sec 60° - \cot^2 30°}$$

15. Consider the following distribution of daily wages of 50 workers of a factory.

Daily wages in Rupees	200-250	250-300	300-350	350-400	400-450
Number of Workers	6	8	14	10	12

Find the mean daily wages of the workers in the factory by using step-deviation method.

OR

Draw a circle of radius 5 cm. From a point 8 cm away from its centre, construct a pair of tangents to the circle. Find the lengths of tangents.

16. The following table gives production yield per hectare of Wheat of 100 farms of a village.

Production yield (Quintal/Hec.)	50-55	55-60	60-65	65-70	70-75	75-80
Number of farmers	2	24	16	8	38	12

Draw both Ogives for the above data. Hence obtain the median production yield.

OR

Construct a triangle of sides 5 cm, 6 cm and 7 cm, then construct a triangle similar to it, whose sides are $\frac{2}{3}$ of the corresponding sides of the first triangle.

17. DWACRA is supplied cuboidal shaped wax block with measurements 88 cm × 42 cm × 35 cm. From this how many number of cylindrical candles of 2.8 cm diameter and 8 cm of height can be prepared ?

OR

Two poles of equal heights are standing opposite to each other, on either side of the road, which is 80 m wide. From a point between them on the road, the angles of elevation of top of the poles are 60° and 30° respectively. Find the height of the poles.