

MT

2017 ____ 1100

Seat No.

--	--	--	--	--	--	--	--

MT GENERAL MATHEMATICS (71) GEOMETRY - SEMI PRELIM - I - PAPER - 1 (E)

Time : 2½ Hours

(Pages 3)

Max. Marks : 40

Note :

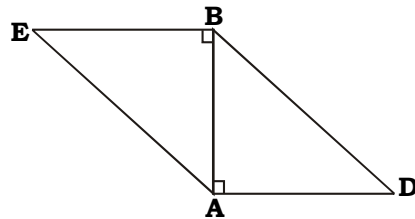
- (i) All questions are compulsory.
- (ii) Use of calculator is not allowed.

Q.1. Attempt ANY FIVE of the following :

5

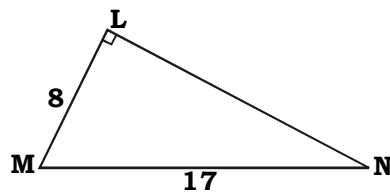
- (i) In the adjoining figure,
seg $EB \perp$ seg AB and
seg $BA \perp$ seg AD .

If $BE = 6$ and $AD = 9$ find $\frac{A(\Delta ABE)}{A(\Delta BAD)}$.



- (ii) The side of a cube is 11 cm. Find the area of the vertical faces of the cube.

- (iii) Using information given in the figure,
find LN .

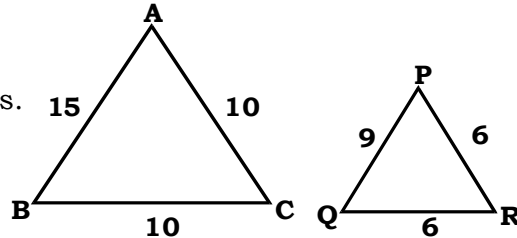


- (iv) Find the volume of a sphere of diameter 6 cm. ($\pi = 3.14$)
- (v) For $\Delta ABC \sim \Delta PQR$, state all the corresponding congruent angles.
- (vi) The radius of the base of a cone is 7 cm and its height is 24 cm. What is its slant height ?

Q.2. Solve ANY FOUR of the following :

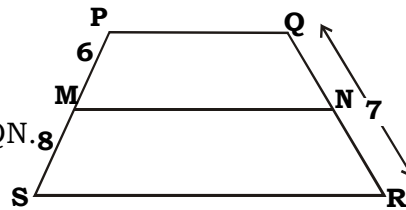
8

- (i) In the adjoining figure,
 $\triangle ABC$ and $\triangle PQR$ are shown.
 Are they similar ? Give reasons.



- (ii) Draw a tangent at any point M on the circle of radius 2.5 cm with centre O.
- (iii) An auditorium is 20m in length and 15m is breadth. If the volume of the auditorium is 3000 m^3 , find its height.

- (iv) In the adjoining figure,
 $\square PQRS$ is a trapezium.
 $\text{seg } PQ \parallel \text{seg } MN \parallel \text{seg } SR$.
 If $PM = 6$, $MS = 8$, $QR = 7$ then find QN .



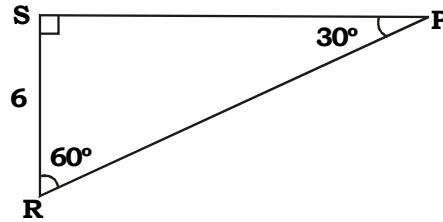
- (v) Draw $\angle XYZ$ of measure 120° and bisect it.
- (vi) If the ratio of volumes of two spheres is 27:64, find the ratio of their radii.

Q.3. Solve ANY THREE of the following :

9

- (i) The lengths of sides of a triangle are 2, 3 and $\sqrt{13}$. Is this triangle a right angled triangle ? If yes, what is the length of its hypotenuse?
- (ii) Construct tangents to the circle of radius 2 cm from a point at a distance 6.5 cm from the centre.
- (iii) The radius and height of a cylinder are equal. If its total surface area is 2464 sq.cm , find the area of the curved surface.

- (iv) Using information given in the figure, find RP and PS.



- (v) Find the volume of a cone whose radius is 7 cm and slant height is 25 cm.

Q.4. Solve ANY TWO of the following :

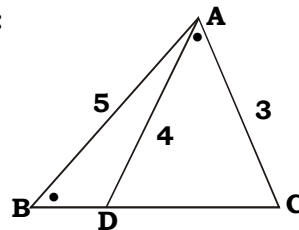
8

- (i) $\Delta PQR \sim \Delta MNS$ and $\frac{PQ}{MN} = \frac{1}{2}$. If the perimeter of ΔPQR is 15 then find the perimeter of ΔMNS .
- (ii) Construct the circumcircle of ΔDEF in which $DE = 6.2$ cm, $\angle EDF = 65^\circ$. $\angle DEF = 50^\circ$.
- (iii) The dimensions of a rectangular parallelepiped are in the ratio 4 : 3 : 2. If the surface area of vertical faces is 448 sq.cm, find its length, breadth and height.

Q.5. Solve ANY TWO of the following :

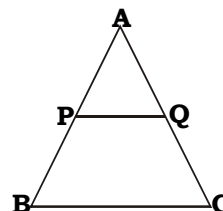
10

- (i) In the adjoining figure, D is a points on BC such that $\angle ABD \cong \angle CAD$. If $AB = 5$, $AD = 4$ and $AC = 3$ then find (i) BC (ii) DC (iii) A (ΔACD) : A (ΔBCA)



- (ii) A wall 8 m long, 6 m high and 22.5 cm thick is made up of bricks, each measuring 25 cm \times 11.25 cm \times 6 cm. How many such bricks are used to build the wall?

- (iii) In ΔABC , seg $PQ \parallel$ seg BC . If $\frac{AP}{AB} = \frac{1}{3}$ and A (ΔAPQ) = 4 sq. units then find A (ΔABC) and A ($\square PBCQ$).



Best Of Luck 🍀