

Q.P. SET CODE
B

MT - X

Seat No.

2017 ___ ___ 1100 - MT - X - GENERAL MATHEMATICS (71) GEOMETRY- SET - B (E)

Time : 2 Hours

(Pages 4)

Max. Marks : 40

Note :

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

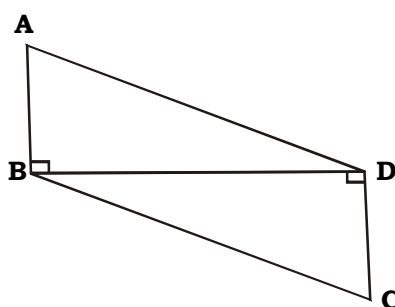
Q.1. Solve ANY FIVE of the following :

5

- (i) In the adjoining figure,
 $\angle ABD = \angle BDC = 90^\circ$.

If $\frac{A(\Delta ABD)}{A(\Delta CDB)} = \frac{4}{5}$ and

$AB = 6$ then find DC .

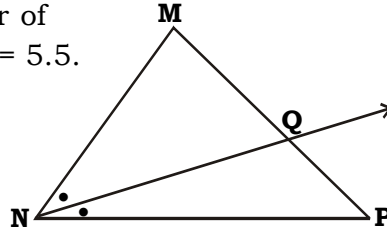


- (ii) Find value : $\sin 45^\circ \times \cos 45^\circ - \sin 30^\circ$.
- (iii) What is the midpoint of class 16-20 ?
- (iv) How many tangents can be drawn to a circle from a point on the circle ?
- (v) If the diameter of a circle is 10.4 cm, then what is its radius ?
- (vi) If coin is tossed, what is its sample space ?

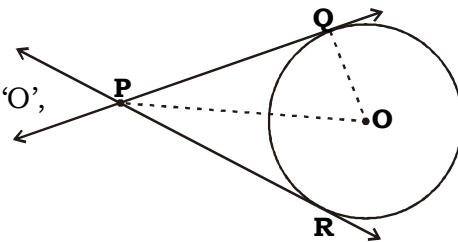
Q.2. Solve ANY FOUR of the following :

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- (i) In $\triangle MNP$, NQ is the bisector of $\angle MNP$ and $MQ = 2$ and $MP = 5.5$. Find $MN : NP$.

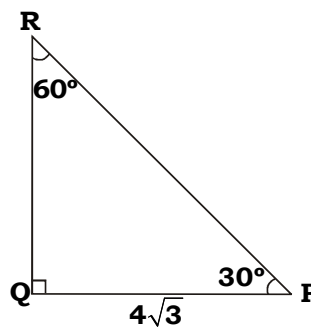


- (ii) In the adjoining figure, line PQ and line PR are tangents to the circle at Q and R having centre 'O', if radius of the circle is 5 cm and $PQ = 12$ cm, find OP .



- (iii) The radius and slant height of a cone are 7 cm and 10 cm respectively. Find its curved surface area. ($\pi = \frac{22}{7}$)
- (iv) The surface area of a sphere is 154 sq.cm. Find its radius and diameter.
- (v) Devesh buys a fish from a shop for his aquarium. The shopkeeper takes out one fish at random from a tank containing 5 red coloured and 8 black coloured fish. What is the probability that the fish taken out is a red coloured one ?

- (vi) Using information given in the figure, find PR and QR .



Q.3. Solve ANY THREE of the following :**9**

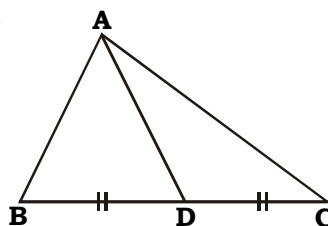
- (i) $\triangle UABC \sim \triangle UPQR$ and $A(\triangle UABC) = 144 \text{ cm}^2$ and $A(\triangle UPQR) = 100 \text{ cm}^2$. If $BC = 12 \text{ cm}$, then find the value of QR .
- (ii) Find the value of $\sin^2 45^\circ + \cos^2 45^\circ$.
- (iii) Construct a circumcircle of $\triangle XYZ$ in which $XY = 5.5 \text{ cm}$, $\angle X = \angle Y = 70^\circ$.
- (iv) The length, breadth and height of a rectangular solid are in the ratio $8:6:3$. If the total surface area is 1080 cm^2 . Find the length, breadth and height of the solid.
- (v) The following data indicate the number of students using different modes of transport :

Mode of transport	Bicycle	Bus	Walk	Train	Car
Number of students	140	100	70	40	10

Draw a Pie diagram.

Q.4. Solve ANY TWO of the following :**8**

- (i) Three circles having centres A , B and C are touching each other externally. If $AB = 5 \text{ cm}$, $BC = 5 \text{ cm}$, $AC = 4 \text{ cm}$ then find the radii of the circles.
- (ii) In $\triangle XYZ$, $XY = 5.5 \text{ cm}$, $\angle XYZ = 40^\circ$ and $\angle YZX = 60^\circ$. Draw the incircle of $\triangle XYZ$.
- (iii) In $\triangle ABC$, seg AD is a median. If $AB = 11$, $AC = 17$, $BC = 12$, then find the value of AD .

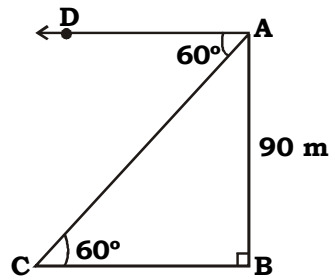


Q.5. Solve ANY TWO of the following :

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- (i) The volume of a cone is the same as that of volume of a cylinder whose height is 9 cm and diameter 40 cm. Find the radius of the base of the cone if its height is 108 cm.

- (ii) In the adjoining figure, an observer at point A looking at a ship at point C from the top of a light house makes an angle of depression 60° . If the height of the light house is 90 meters, then find how far is that ship from the light house?



- (iii) Following table shows distribution of monthly expenditure on electricity (in ₹) by households in a certain village :

Monthly expenditure	150 - 225	225 - 300	300 - 375	375 - 450	450 - 525	525 - 600	600 and above
No. of households	65	171	75	196	53	26	14

Find the median expenditure by households on electricity per month.

Best Of Luck 🍀