**GEOMETRY, MENSURATION AND TRIGNOMETRY**

**GEOMETRY, MENSURATION (2D)**

1. If two sides of a triangle measure 7 units and9 units, then the measure of the third side is

a) Greater than 16 b) Any value between 2 and 16

c) The difference between 7 and 9 d) None of the above

2. If three sides of a triangle measure 9 units,40 units & 41 units, find the area of the triangle.

a) 240 sq.units b) 180 sq.units c) 360 sq.units d) 270 sq.units

3. For the triangle in question above, how many times its in-radius(r) is its

circum-radius(R)?

a) 5.332 b) 5.125 c) 5.374 d) 5.089

4. Two triangles ABC and DEF are similar to each other. Sides BC and DF are the

corresponding sides of the triangles and are in the ratio 3: 5. Find the area of the triangle ABC if the area of triangle DEF is 100square units.

a) 90 sq.units b) 36 sq.units c) 60 sq.units d) None of these

5. A rectangle becomes a square when its length and breadth are reduced by 10 units and 5 units respectively. By this process the area of the rectangle reduces by 650 square units. What is the area of the rectangle?

a) 2150 b) 2250 c) 2300 d) 2200

6. A blacksmith bent a steel wire in the form of a square encloses an area of 121 sq.cm. If the same wire he bent in the form of a circle, find the area of the circle.

a) 145 b) 150 c) 154 d) 175

7. Two identical circles intersect so that their centres, and the points at which they intersect, form a square of side 1cm. The area in sq. cm of the portion that is common to the two circles is:   
a) π/2 b) π-1 c) 4 d) (π/2)-1

8. ABCD is a rectangle. E & F are midpoints of BC & CD respectively .If the area of the triangle AEF is 15sq cm, area of the rectangle in sq cm is,

a) 36 b) 40 c)44 d)150

9. A square and an equilateral triangle have the same perimeter. What is the ratio of the area of the circle circumscribing the square to the area of the circle circumscribing the triangle?

a) 6:1 b) 27:8 c) 27:32 d) 16:27

10. There is a rectangular garden whose length and width are 60m x 20m. There is a walkway of uniform width around the garden. Area of walkway is 512 m², Find the width of the walkway.

a)1m b) 2m c) 3m d) 4m

**MENSURATION (3D)**

1. A sphere of radius 6 cm is cast into three small spheres. If the radii of two of these spheres are 4 and 3 respectively, then find the radius of the third sphere?

a) 2.5 cm b) 3.2 cm c) 5 cm d) None of these

2. A conical tent has a base radius of 14 metres and a height of 48 metres. Find the quantity of canvas used to construct the tent.

a) 1100 m2 b) 4800 m2 c) 1400 m2 d) 2200 m2

3. A cone and a cylinder have the same volume. If their heights are same then the

ratio of the base radii of the cone to the cylinder is,

a) 1 : √3 b) √3 : 1 c) 1 : 1 d) None of these

4. If the volume and surface area of a sphere are numerically same, then its diameter is

a) 3 units b) 6 units c) 9 units d) 10 units

5. A cylindrical jar of height 60 cm and base radius 15 cm is full of mercury. One third of the contents of this vessel are to be exactly held in a spherical vessel. Find the radius of this vessel?

a) 17 cm b) 20 cm c) 19 cm d) 15 cm

6. Ram purchased a rectangular plot land measuring 49 m x 46 m to construct a house. As a first step he dug a well which had a radius of 7 metres and a depth of 40 metres. The earth dug out during the operation was evenly spread on the field. Find the increase in the height of the field.

a) 2.8 metres b) 3.2 metres c) 2.933 metres d) None of these

7. The maximum length of a rod that can be kept in a rectangular box dimensions 16cm x 14cm x 22 cm is

a) 5 √26 cm b) 2 √26 cm c) 3 √6 cm d) 6 √26 cm

8. If each side of a cube is increased by 30% then the percentage increase in its surface area is

a) 25% b) 50% c) 69% d) 56.25%

9. The base of a glass prism is an equilateral triangle of side 4 cm. If its height is 10 cm, find the quantity of glass used to manufacture this prism, given that density of

flint glass is 3700 kg/m3.

a) 162√3 grams b) 132√3 grams c) 144√3 grams d) 148√3 grams

10. A solid wooden toy is in the shape of right circular cone mounted on the base of a hemisphere of radius 4.2 cm. If the total height of the toy is10.2 cm, find the volume of the wooden toy

a) 104 cm3 b) 162 cm3 c) 427 cm3 d) 266 cm3

11. A square of side 2 cm is cut from each of the four corners of a rectangular sheet of dimension 16 cm X 8 cm. The sheet is then folded to form an open box. What is the volume of the box?

a) 144 cu.cm b) 180 cu.cm c) 168 cu.cm d)96 cu.cm

**TRIGONOMETRY**

1. A tower stands on a horizontal plane, a man on the ground 100m from the base of the tower finds the angle of elevation of the top of the tower to be 30 degrees. What is the height of the tower?

a)100m b) 100√3 c)100/√3 d) None of these

2. A pole being broken by the wind , the top struck the ground at an angle of 30˚ and at a distance of 21m from the foot of the pole. Find the total height of the pol.

a)21m b) 21√3 c) 21/√3 d) None of these

3. In a rectangle if the angle between a diagonal and a side is 30˚ and the length of the diagonal is 6cm, the area of the rectangle is

a) 9 cm² b) 9√3 cm² c) 27 cm² d) 36 cm²

4. From the top of a light house, 50m above the sea, the angle of depression of an incoming boat is 30˚. How far is the boat from the light house?

a) 25√3 m b) 25/√3 m c) 50√3 m d) 50/√3 m

5. A tower stands at the end of straight road, the angle of elevation of the top of the tower from two points on the road 500m apart are 45˚ and 60˚ respectively . Find the height of the tower.

a) (500√3) / (√3 – 1) b) 500√3 c) (500√3) / (√3 + 1) d) None of these