UNIT TEST – 8

STD : X **TIME : 1 ½ Hrs**

SUBJECT : MATHS **MARKS : 50**

MENSURATION

SECTION – I **10 x 1 =10**

NOTE: (i) Answer all the 10 questions

(ii) Choose the correct answer from the given four alternatives and write the option code and the corresponding answer

1. If the total surface area a solid right circular cylinder is 200π cm^2 and its radius is 5cm, then the sum of its height and radius is
   a) 20cm b) 25cm c) 30cm d)15cm
2. Two right circular cones have equal radii. If their slant heights are in the ratio 4:3, then their respective curved surface areas are in the ratio.
   a) 16 : 9 b) 2 : 3 c) 4 : 3 d) 3 : 4
3. The total surface area of a solid hemisphere of diameter 2cm is equal to
   a) $12cm^2$ b) $12\ \pi\ cm^2$ c) $4\ \pi\ cm^2$ d) $3\pi\ cm^2$
4. If the radius of a sphere is half of the radius of another sphere, then their respective volumes are in the ratio
   a) 1 : 8 b) 2 : 1 c) 1 : 2 d) 8 : 1
5. Base area of a right circular cylinder is 80 cm^2. If its height is 5cm, then the volume is equal to
   a) $400cm^3$ b) 16 cm^3 c) 200 cm^3 d) $\frac{400}{3}$ cm^3
6. The ratios of the respective heights and the respective radii of two cylinders are 1:2 and 2:1 respectively. Then their respective volumes are in the ratio
   a) 4 : 1 b) 1 : 4 c) 2 : 1 d) 1 : 2
7. The curved surface area of a right circular cylinder whose radius is a units and height is b units, is equal to
   a) $\pi a^2 b$ sq.cm b) $2\pi ab$ sq.cm c) 2π sq.cm d) 2 sq.cm
8. If the surface area of a sphere is 36 πcm^2, then the volume of the sphere is equal to
   a) 12 πcm^3 b) $36\pi cm^3$ c) $72\pi cm^3$ d) $108\pi cm^3$
9. The surface areas of two spheres are in the ratio of 9:25. Then their volumes are in the ratio.
   a) 81 : 625 b) 729 : 15625 c) 27 : 75 d) 27 : 125

10. Curved surface area of a solid sphere is 24 cm^2. If the sphere is divided into two hemisphere, then the total surface area of one of the hemispheres is

a) 12 cm^2 b) 8cm^2 c) 16 cm^2 d) 18cm^2

SECTION – II 5 x 2 =10

NOTE: (i) Answer 5 questions

(ii) Question number 17 is compulsory. Select any 4 questions from the first 6 questions

11. A sector containing an angle of 120° is cut off from a circle of radius 21 cm and folded into a cone. Find the curved surface area of the cone. (Take $\pi = 22/7$)
12. The thickness of a hemispherical bowl is 0.25 cm. The inner radius of the bowl is 5 cm. Find the outer curved surface area of the bowl. (Take $\pi = 22/7$)
13. A solid right circular cylinder has radius of 14 cm and height of 8 cm. Find its curved surface area and total surface area.
14. Curved surface area and circumference at the base of a solid right circular cylinder are 4400 sq.cm and 110 cm respectively. Find its height and diameter .
15. If the circumference of the base of a solid right circular cone is 236cm and its slant right circular cone is 236 cm and its slant height is 12cm. Find its curved surface area.
16. The central angle and radius of a sector of a circular disc are 180° and 21 cm respectively. If the edges of the sector are joined together to make a hollow cone, then find the radius of the cone.
17. Find the volume of a sphere-shaped metallic shot-put having diameter of 8.4 cm. (Take $\pi = 22/7$)

(OR)

The internal and external radii of a hollow cylinder are 12 cm and 18 cm respectively. It its height is 14 cm. Find its curved surface area.

SECTION – III 6 x 5 =30

NOTE: (i) Answer 6 questions

(ii) Question number 25 is compulsory. Select any 5 questions from the first 7 questions

18. The radii of two circular ends of a frustum shaped bucket are 15 cm and 8 cm. If its depth is 63cm, find the capacity of the bucket in liters. (Take $\pi = \frac{22}{7}$).

19. The perimeter of the ends of a frustum of a cone are 44 cm and 8.4 π cm. If the depth is 14 cm., then find its volume.

20. A circus tent is to be erected in the form of a cone surmounted on a cylinder. The total height of the tent is 49 m. Diameter of the base is 42 m and height of the cylinder is 21 m. Find the cost of canvas needed to make the tent, if the cost of canvas is Rs.12.50/m2 . (Take π = 22/7).

21. Using clay, a student made a right circular cone of height 48 cm and base radius 12 cm. Another student reshapes it in the form of a sphere. Find the radius of the sphere.

22. A container with a rectangular base of length 4.4 m and breadth 2 m is used to collect rain water. The height of the water level in the container is 4 cm and the water is transferred into a cylindrical vessel with radius 40 cm. What will be the height of the water level in the cylinder?

23. A cylindrical bucket of height 32 cm and radius 18 cm is filled with sand. The bucket is emptied on the ground and a conical heap of sand is formed. If the height of the conical heap is 24 cm, find the radius and slant height of the heap.

24. A cylindrical shaped well of depth 20 m and diameter 14 m is dug. The dug out soil is evenly spread to form a cuboid–platform with base dimension 20 m x 14 m. Find the height of the platform.

25. A solid sphere of diameter 6 cm is dropped into a right circular cylindrical vessel with diameter 12 cm, which is partly filled with water. If the sphere is completely submerged in water, how much does the water level in the cylindrical vessel increase?

(OR)

A hollow cylindrical pipe is of length 40 cm. Its internal and external radii are 4 cm and 12 cm respectively. It is melted and cast into a solid cylinder of length 20 cm. Find the radius of the new solid.