MENSURATION
UNIT TEST

CLASS: 10 **MARKS:50**
SUB: MATHS **TIME: 1.30 Hrs.**

I. Choose the correct answer: **7 x 1 = 7**

1. The curved surface area of a right circular cone of height is 15cm and base diameter 16 cm is
(A) 60π cm^2 (B) 68π cm^2 (C) 120π cm^2 (D) 136π cm^2 .
2. The height of a right circular cone whose radius is 5 cm and slant height is 13cm will be
(A) 12 cm (B) 10 cm (C) 13 cm (D) 5 cm
3. The total surface area of a cylinder whose radius is $\frac{1}{3}$ of its height is
(A) $\frac{9\pi h^2}{8}\ sq.u$ (B) $24\pi h^2$sq.u (C) $\frac{8\pi h^2}{9}\ sq.u$ (D) $\frac{56\pi h^2}{9}\ sq.u$.
4. If the radius of the base of a cone is tripled and the height is doubled then the volume is
(A) made 6 times (B) made 18 times (C) made 12 time (D) unchanged
5. A solid sphere of radius x cm is melted and cast into a shape of a solid cone of same radius. The height of the cone is
(A) 3x cm (B) x cm (C) 4x cm (D) 2x cm
6. A shuttle cock used for playing badminton has the shape of the combination of
(A) a cylinder and a sphere (B) a hemisphere and a cone
(C) a sphere and a cone (D) frustum of a cone and a hemisphere
7. The ratio of the volume of a cylinder, a cone and a sphere, if each has the same diameter and same height is
(A) 1:2:3 (B) 2:1:3 (C) 1:3:2 (D) 3:1:2

II. Answer any FIVE Questions: (Q.No.14 is compulsory) **5 x 2 = 10**

8. The curved surface area of a right circular cylinder of height 14cm is 88 sq.cm. Find the diameter of the cylinder.
9. If the total surface area of a cone of radius 7 cm is 704 cm^2, then find its slant height?
10. If the base area of a hemispherical solid is 1386 sq metres, then find its total surface area?
11. The radius of a sphere increases by 25%. Find the percentage increase in its surface area.
12. If the circumference of a conical wooden piece is 484 cm then find its volume when its height is 105 cm.
13. The volume of a solid right circular cone is 11088 cm^3. If its height is 24 cm then find the radius of the cone.
14. The volumes of two cones of same base radius are 3600 cm^3 and 5040 cm^3. Find the ratio of heights.

III. Answer any FIVE questions: (Q.No.21 is compulsory) **5 x 5 = 25**

15. A right angle triangle PQR where $\angle A = 90°$ is rotated about QR and PQ. If QR = 16 cm and PR = 20 cm, compare the curved surface areas of the right circular cones so formed by the triangle.
16. A 14 m deep with inner diameter 10 m is dug and the earth taken out is evenly spread all around the well to form an embankment of width 5 m. Find the height of the embankment.
17. A container open at the top is in the form of a frustum of a cone of height 16 cm with radii of its lower and upper ends are 8 cm and 20 cm respectively. Find the cost of milk which can completely fill a container at the rate of Rs.240 per litre.
18. A solid consisting of a right circular cone of height 12 cm and radius 6 cm standing on a hemisphere of radius 6 cm is placed upright in a right circular cylinder full of water

such that it touches the bottom. Find the volume of the water displaced out of the cylinder, if the radius of the cylinder is 6 cm and height is 18 cm.

19. A right circular cylindrical container of base radius 6 cm and height 15 cm is full of ice cream. The ice cream is to be filled in cones of height 9 cm and base radius 3 cm, having a hemispherical cap. Find the number of cones needed to empty the container.

20. A solid sphere of radius 6 cm is melted into a hollow cylinder of uniform thickness. If the external radius of the base of the cylinder is 5 cm and its height is 32 cm, then find the thickness of the cylinder.

21. A metallic sphere of radius 16 cm is melted and recast into small spheres each of radius 2 cm. How many small spheres can be obtained?

IV. Answer all the question: **1 x 8 = 8**

22. Draw a circle of diameter 6 cm from a point P, which is 8 cm away from the centre. Draw the two tangents PA and PB to the circle and measure their lengths.

(OR)

A bus is travelling at a uniform speed of 50km/hr. Draw the distance-time graph and hence find (i) the constant of variation (ii) how far will it travel in $1\frac{1}{2}$ hr (iii) the time required to cover a distance of 300 km from the graph.