

ROYAL TUITION CENTER, ELAMPILLAI, CELL : 9080244280

CLASS : X

MARKS : 75

SUBJECT : MATHS

TIME : 150 Min

**I. ANSWER ALL THE QUESTIONS****1x10 = 10**

- The ratio of the volumes of a cylinder, a cone and a sphere, if each has the same diameter and same height is
 (1) 1:2:3 (2) 2:1:3 (3) 1:3:2 (4) 3:1:2
- The volume (in cm^3) of the greatest sphere that can be cut off from a cylindrical log of wood of base radius 1 cm and height 5 cm is
 (1) $\frac{4}{3}\pi$ (2) $\frac{10}{3}\pi$ (3) 5π (4) $\frac{20}{3}\pi$
- A spherical ball of radius r_1 units is melted to make 8 new identical balls each of radius r_2 units. Then $r_1 : r_2$ is
 (1) 2:1 (2) 1:2 (3) 4:1 (4) 1:4
- A frustum of a right circular cone is of height 16cm with radii of its ends as 8cm and 20cm. Then, the volume of the frustum is
 (1) $3328\pi \text{ cm}^3$ (2) $3228\pi \text{ cm}^3$ (3) $3240\pi \text{ cm}^3$ (4) $3340\pi \text{ cm}^3$
- The total surface area of a hemi-sphere is how much times the square of its radius.
 (1) π (2) 4π (3) 3π (4) 2π
- The total surface area of a cylinder whose radius is $\frac{1}{3}$ of its height is
 (1) $\frac{9\pi h^2}{8}$ sq.units (2) $24\pi h^2$ sq.units
 (3) $\frac{8\pi h^2}{9}$ sq.units (4) $\frac{56\pi h^2}{9}$ sq.units
- The height of a right circular cone whose radius is 5 cm and slant height is 13 cm will be
 (1) 12 cm (2) 10 cm (3) 13 cm (4) 5 cm
- If two solid hemispheres of same base radius r units are joined together along their bases, then curved surface area of this new solid is
 (1) $4\pi r^2$ sq. units (2) $6\pi r^2$ sq. units (3) $3\pi r^2$ sq. units (4) $8\pi r^2$ sq. units
- If the radius of the base of a cone is tripled and the height is doubled then the volume is
 (1) made 6 times (2) made 18 times (3) made 12 times (4) unchanged
- A shuttle cock used for playing badminton has the shape of the combination of
 (1) a cylinder and a sphere (2) a hemisphere and a cone
 (3) a sphere and a cone (4) frustum of a cone and a hemisphere

Kindly send me your key answers to our email id - padasalai.net@gmail.com

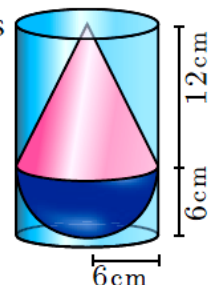
II. ANSWER ANY 10 QUESTIONS. 16 AND 22 IT'S A COMPULSORY QUESTIONS $10 \times 2 = 20$

11. A cylindrical drum has a height of 20 cm and base radius of 14 cm. Find its curved surface area :
12. If the total surface area of a cone of radius 7cm is 704 cm^2 , then find its slant height.
13. Find the diameter of a sphere whose surface area is 154 m^2 .
14. The slant height of a frustum of a cone is 5 cm and the radii of its ends are 4 cm and 1 cm. Find its curved surface area.
15. The radius and height of a cylinder are in the ratio 5:7 and its curved surface area is 5500 sq.cm . Find its radius and height.
16. Find the volume of a cylinder whose height is 2 m and whose base area is 250 m^2 .
17. If the circumference of a conical wooden piece is 484 cm then find its volume when its height is 105 cm.
18. An aluminium sphere of radius 12 cm is melted to make a cylinder of radius 8 cm. Find the height of the cylinder.
19. A vessel is in the form of a hemispherical bowl mounted by a hollow cylinder. The diameter is 14 cm and the height of the vessel is 13 cm. Find the capacity of the vessel.
20. The volumes of two cones of same base radius are 3600 cm^3 and 5040 cm^3 . Find the ratio of heights.
21. If the ratio of radii of two spheres is 4:7, find the ratio of their volumes.
22. 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.

III. ANSWER ANY 9 QUESTIONS .30 AND 32 IT'S A COMPULSORY QUESTIONS $9 \times 5 = 45$

23. 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.
24. Water is flowing at the rate of 15 km per hour through a pipe of diameter 14 cm into a rectangular tank which is 50 m long and 44 m wide. Find the time in which the level of water in the tanks will rise by 21 cm.

- 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.



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26. Nathan, an engineering student was asked to make a model shaped like a cylinder with two cones attached at its two ends. The diameter of the model is 3 cm and its length is 12 cm. If each cone has a height of 2 cm, find the volume of the model that Nathan made.
27. 12 cm long attached at the bottom. If the total height be 20 cm, diameter of the cylindrical portion be 12 cm and the diameter of the top of the funnel be 24 cm. Find the outer surface area of the funnel.
28. A toy is in the shape of a cylinder surmounted by a hemisphere. The height of the toy is 25 cm. Find the total surface area of the toy if its common diameter is 12 cm.
29. The outer and the inner surface areas of a spherical copper shell are $576\pi \text{ cm}^2$ and $324\pi \text{ cm}^2$ respectively. Find the volume of the material required to make the shell.
30. For the cylinders *A* and *B* (Fig. 7.27),
- find out the cylinder whose volume is greater.
 - verify whether the cylinder with greater volume has greater total surface area.
 - find the ratios of the volumes of the cylinders *A* and *B*.

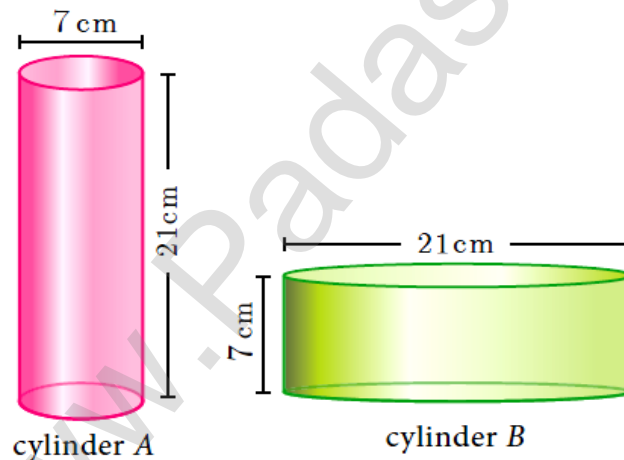


Fig. 7.27

31. A girl wishes to prepare birthday caps in the form of right circular cones for her birthday party, using a sheet of paper whose area is 5720 cm^2 , how many caps can be made with radius 5 cm and height 12 cm.
32. The frustum shaped outer portion of the table lamp has to be painted including the top part. Find the total cost of painting the lamp if the cost of painting 1 sq.cm is ₹ 2.

