UDAAN 2024

Surface Areas and Volumes

DHA-01

1. A solid is in the shape of a cone surmounted on a hemisphere, the radius of each of them is being 3.5 cm and the total height of solid is 9.5 cm. Find the volume of the solid. (Use $\pi = 22/7$).

2. A decorative block shown in figure is made of two solids – a cube and a hemisphere. The base of the block is a cube with edge 5 cm, and the hemisphere fixed on the top has a diameter 4.2 cm. Find the total surface area of the block (Take $\pi = 22/7$).

3. A cubical block of side 7 cm is surmounted by a hemisphere. What is the greatest diameter the hemisphere can have? Find the total surface of the solid.

4. A pen stand made of wood is in the shape of a cuboid with four conical depressions to hold pens. The dimensions of the cuboid are 15 cm by 10 cm by 3.5 cm. The diameter of each of the depression is 1 cm and the depth is 1.4 cm. Find the volume of the wood in the entire stand.

5. From a solid cylinder of height 2.8 cm and diameter 4.2 cm, a conical cavity of the same height and same diameter is hollowed out. Find the total surface area of the remaining solid. (Take $\pi = 22/7$).

6. The curved surface area of a right circular cone of height 15 cm and base diameter 16 cm is:

(A) 60π cm^2 (B) 68π cm^2

(C) 120π cm^2 (D) 136π cm^2

7. A circus tent is cylindrical to a height of 4 m and conical above it. If its diameter is 105 m and its slant height is 40 m, the total area of the canvas required in m^2 is:

(A) 1760 (B) 2640

(C) 3960 (D) 7920

8. A solid consists of a circular cylinder with an exact fitting right circular cone placed at the top. The height of the cone is 'h'. If the total volume of the solid is 3 times the volume of the cone, then the height of the circular cylinder is:

(A) $2h$ (B) $\frac{2h}{3}$

(C) $\frac{3h}{2}$ (D) $4h$

9. The curved surface area of a cylinder is 264 m^2 and its volume is 924 m^3. The ratio of its diameter to its height is:

(A) 3 : 7 (B) 7 : 3

(C) 6 : 7 (D) 7 : 6

10. A solid wooden toy is in the form of a hemisphere surmounted by a cone of same radius. The radius of hemisphere is 3.5 cm and the total wood used in the making of toy is $166\frac{5}{6}$ cm^3. Find the height of the toy.

Note: Kindly find the Video Solution of DHAs Questions in the DPP Section.

Answer Key

1. (166.83 cm^3)

2. (163. 86 cm^2)

3. (332.5 cm^2)

4. (523.53 cm^3)

5. (73.92 cm square)

6. (D)

7. (D)

8. (B)

9. (B)

10. (9.5 cm)

Hints and Solutions

1. (166.83 cm^3)

2. (163. 86 cm^2)

3. (332.5 cm^2)

4. (523.53 cm^3)

5. (73.92 cm square)

6. (D) 136 π cm^2

7. (D) 7920

8. (B) $\frac{2h}{3}$

9. (B) 7 : 3

10. (9.5 cm)

PW Web/App - https://smart.link/7wwosivoicgd4
Library- https://smart.link/sdfez8ejd80if