Practice Challenge - Objective

Subject: Mathematics

Topic : Surface areas and Volumes
Exam Prep 1   Class: X

1.

A cubical block of side 7 cm is surmounted by a hemisphere. Find the surface area of the solid(in cm^2).

    A. 332.5 cm^2

    B. 346.8 cm^2

    C. 312.5 cm^2

    D. 320 cm^2

2.

Rachel, an engineering student, was asked to make a model shaped like a cylinder with two cones attached at its two ends by using a thin aluminium sheet. 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 air contained in the model that Rachel made . (Assume the outer and inner dimensions of the model to be nearly the same.)

    A. 50 cm^3

    B. 66 cm^3

    C. 62 cm^3

    D. 75 cm^3

3.

Metallic spheres of radii 6 cm, 8 cm and 10 cm respectively are melted to form a single solid sphere. Find the radius of the resulting sphere(in cm).

    A. 12

    B. 21

   **C.** 18

    D. 15

4.

Find the surface area of the given below figure having dimension in cm as shown.
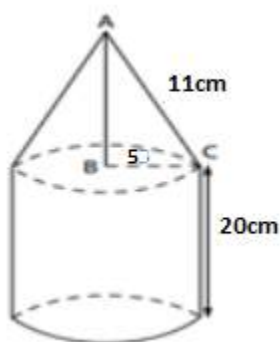
    A. $900 \ cm^2$

    B. $880 \ cm^2$

    C. $650 \ cm^2$

    D. $400 \ cm^2$

5. Anita buys a new salt cellar in the shape of a cylinder topped by a hemisphere as shown below. The cylinder has a diameter of 6 cm and a height of 10 cm. She pours the salt into the salt cellar, so that it takes up half the total volume of the cellar. Find the depth of the salt, marked with x in the diagram
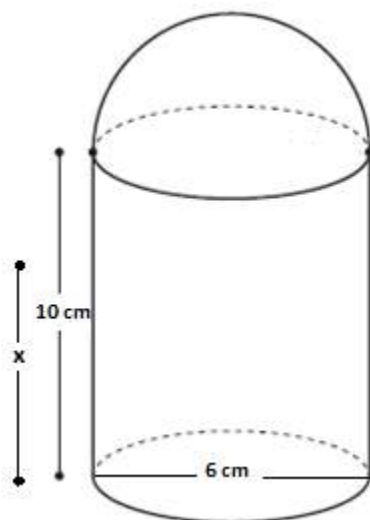
    A. 3 cm

    B. 9 cm

    C. 6 cm

    D. 12 cm

6. What is the diameter (in cm) of a sphere whose surface area is 616 cm^2?

    A. 28

    B. 21

    C. 7

    D. 14

7. There is hollow cube. Its external edge is 5 cm long and its internal edge is 3 cm long. What is its surface area in cm^2 ?

   A. 150

   B. 36

   C. 186

   D. 114

8. A toy has a hemispherical base with a conical top attached to it. Radius of the hemisphere = 6 cm. Height of the cone = 8 cm. What is the surface area of the toy?

   A. $132\pi \ cm^2$

   B. $60\pi \ cm^2$

   C. $82\pi \ cm^2$

   D. $100\pi \ cm^2$

9.

A factory is designed as shown in the figure. There are 150 people working in the factory and each occupy a space of 0.5 m^3. Find the maximum volume available to place machinery in the factory. (Take $\pi = \frac{22}{7}$)

A. $5880m^3$

B. $8960m^3$

C. $8885m^3$

D. $5805m^3$

10. A milk carrying container has the shape of a cylinder mounted on a frustum. The radius of the cylinder is 14 cm and height is 20 cm. The other diameter of the frustum is 7 cm and its height is 5 cm. What is the curved surface area of the container?

A. $1880\ cm^2(approx)$

B. $201.12\ cm^2(approx)$

C. $1060.5\ cm^2(approx)$

D. $2399.65\ cm^2(approx)$