

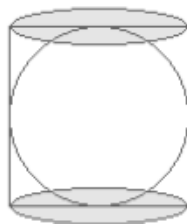
**Class: 9**

**Subject: Mathematics**

**Topic: Surface Area and Volume of solids**

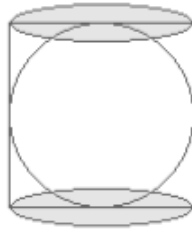
**No. of Questions: 20**

- Q1. A Sphere is just enclosed inside a cube of volume  $60 \text{ cm}^3$ . Find the volume of the sphere.
- Q2. A sphere and a cone have the same radii. If the volume of the sphere is double of the volume of the cone. Find the ratio of the cone's height and radius.
- Q3. If the radius of a hemisphere is  $4x$ , find its curved surface area.
- Q4. A cone made completely of metal (i.e. it is not hollow) has a base radius of  $7 \text{ cm}$ , and height of  $28 \text{ cm}$ . If we melt it and recast it into a sphere, what will be the radius of sphere?
- Q5. Find the surface area of the biggest sphere which can fit inside a cube of side  $6a$ .
- Q6. If radius of a hemisphere is  $4b$ , find its volume.  
(a)  $\frac{2}{3} \pi b^3$   
(b)  $\frac{16}{3} b^3$   
(c)  $\frac{128}{3} \pi b^3$   
(d)  $18 \pi b^3$
- Q7. A sphere is just enclosed inside a right circular cylinder. If surface area of sphere is  $180 \text{ cm}^2$ , find total surface area of cylinder.



- (a)  $540 \text{ cm}^2$   
(b)  $360 \text{ cm}^2$   
(c)  $270 \text{ cm}^2$   
(d)  $135 \text{ cm}^2$

- Q8. If radiuses of two hemispheres are in ratio 5:2, find the ratio of their volumes.
- (a) 25 : 4
  - (b) 125 : 8
  - (c) 4 : 25
  - (d) 8 : 125
- Q9. Find the volume of the biggest hemisphere, which can fit in a cube of side  $8a$ .
- (a)  $\frac{2}{3} \pi a^3$
  - (b)  $\frac{16}{3} \pi a^3$
  - (c)  $\frac{128}{3} \pi a^3$
  - (d)  $18 \pi a^3$
- Q10. If a cylinder and hemisphere stands on equal bases, and have the same height, Find the ratio of their volumes.
- (a) 2 : 3
  - (b) 3 : 1
  - (c) 3 : 2
  - (d) 2 : 1
- Q11. An sphere is expanded to a bigger sphere such that its volume increases by a factor of 64, Find the change in its radius.
- (a) 64 times
  - (b) 16 times
  - (c) 4 times
  - (d) None of these
- Q12. Find the volume of the biggest cone that can fit inside a cube of side 5 cm.
- (a)  $\frac{125\pi}{3} \text{ cm}^3$
  - (b)  $\frac{125\pi}{12} \text{ cm}^3$
  - (c)  $\frac{25\pi}{12} \text{ cm}^3$
  - (d)  $\frac{125\pi}{6} \text{ cm}^3$
- Q13. A sphere is just enclosed inside a right circular cylinder. If volume of the gap between cylinder and sphere is  $10 \text{ cm}^3$ , find volume of the sphere



- (a)  $25 \text{ cm}^3$   
(b)  $10 \text{ cm}^3$   
(c)  $40 \text{ cm}^3$   
(d)  $20 \text{ cm}^3$
- Q14. A sphere and a right circular have the same radius. If the volume of the sphere is triple the volume of the cylinder, then what is the ratio of cylinder's height and radius?  
(a) 4 : 9  
(b) 4 : 3  
(c) 3 : 4  
(d) 9 : 4
- Q15. The radius of a cylinder is halved and the height is tripled. What is the area of the curved surface now compared to the previous surface area?  
(a) Two times  
(b) Three times  
(c) 1.5 times  
(d) Same
- Q16. The height of a cone is 30 cm. A small cone is cut off at the top by a plane parallel to its base. If its volume be  $\frac{1}{27}$  of the volume of the give cone, at which height above the base is the section cut?
- Q17. The surface area of a solid metallic sphere is  $1256 \text{ cm}^2$ . It is melted and recast into solid right circular cones of radius 2.5 cm and height 8 cm. Calculate (i) the radius of the solid sphere, (ii) the number of cones recast (Take  $\pi = 3.14$ )
- Q18. An ice-cream cone is the union of a right circular cone and a hemisphere that has the same circular base the cone. Find the volume office cream if the height of the cone is 9 cm and radius of its base is 2.5 cm.

- Q19. Water in a canal, 30 dm wide and 12 dm deep, is flowing with a velocity of 20 km per hour. How much area will it irrigate in 30 min, if 9 cm of standing water is desired?
- Q20. A lead pencil consists of a cylinder of wood with a solid cylinder of graphite filled into it. The diameter pencil is 7 mm, the diameter of the graphite is 1 mm and the length of the pencil is 14 cm. Find the: (i) Volume of the graphite (ii) Volume of the wood (iii) The weight of the whole pencil, if the specific gravity of the wood is  $0.7 \text{ gm/cm}^3$  and that of the graphite is  $2.1 \text{ gm/cm}^3$ .