

QUESTIONS

1. A rectangular reservoir is 54m*44m*10m. An empty pipe of circular cross-section is of radius 3 cm, and the water runs through the pipe at 20 m section. Find the time the empty pipe will take to empty the reservoir full of water.

2. The volume of water measured on a rectangular field 500m*300m is 3000 m³. Find the depth (amount) of water that has fallen ?

3. Find the number of kilograms of copper in a wire of length 300 km, diameter 1/9 cm. Copper wire weighs 270 kg per 0.027 m³.

4. A reservoir is supplied water by a pipe 6 cm in diameter . How many pipe of 3 cm diameter would discharge the same quantity, supposing the velocity of water.

5. A copper sphere of radius 3 cm is beaten and drawn into a wire of diameter 0.2 cm. The length of the wire is

- (a) 9m (b) 12m (c) 18m (d) 36m (e) 24m

6. The radius of sphere is increased by 50%. The increase in surface area of the sphere is

- (a) 100 % (b) 125 % (c) 150 % (d) 200 %

7. The ratio between the side (s) of metallic cube and radius (r) of a sphere which can be cast from each other is expressed as

- (a) $r^2 = s^2\sqrt{4\pi}$ (b) $\frac{r}{s^2} = \sqrt{\frac{28\pi}{3}}$ (c) $rs = 3\sqrt{\frac{3}{4\pi}}$ (d) $r = s^3\sqrt{\frac{3}{4\pi}}$

8. If three metallic spheres of radii 6 cm, 8 cm and 10 cm are melted to form a single sphere, the diameter of new sphere will be

- a. 24 cm b. 16 cm c. 36 cm d. 20 cm

9. If a metallic cuboid weighs 16 kg how much would a miniature cuboid of metal weigh, if all dimensions are reduced to 1/4 of original?

- a. 0.50 kg b. 0.75 kg c. 1 kg d. 0.25 kg

10. A right circular cylinder is formed by rolling a rectangular paper 12 cm long and 3 cm wide along its length . the radius of the base of the cylinder will be

- a. $\frac{6}{2\pi}$ cm b. $\frac{3}{2\pi}$ cm c. $\frac{9}{2\pi}$ cm d. 4π cm

11. A rectangular tank of length 10 m, breadth 5 m, and depth 6 m. Is full of water. How much water must be taken out of the tank to reduce the level of water in the tank by 1 m?

- a. 50 m³ b. 60 m³ c. 80 m³ d. 100 m³

12. A cuboidal water tank contains 216 litres of water its depth is $\frac{1}{3}$ of its length and breadth is $\frac{1}{2}$ of $\frac{1}{3}$ of the difference between length and depth. The length of the tank is

- a. 75 dm. b. 18 dm. c. 36 dm. d. 9 dm.

13. A solid metallic sphere is melted into a solid right circular cylinder whose height is twice the radius of its base. If the radii of the sphere and the base of the cylinder be r and R , then

- a. $R = 3\sqrt{\frac{3r}{2}}$ b. $R = \sqrt{\frac{2r}{3}}$ c. $R = \sqrt[3]{\frac{2r}{3}}$ d. $R = r$

14. The areas of three adjacent faces of a cuboid are a, b and c . If the volume of the cuboid is v , then v^2 is

- a. abc b. $ab+bc+ca$ c. c/ab d. none

15. The height of a room is 40% of its semi-perimeter. It cost Rs. 260 to paper the wall of the room with paper 50 cm wide at the rate of Rs. 2 per meter allowing an area of 15 m^2 for the doors and windows. The height of the room is

- a. 2.6 m b. 3.9 m c. 4m d. 4.2 m

16. The radii of the base of a cylinder and a cone are in the ratio $\sqrt{3}:\sqrt{2}$ and their heights are in the ratio of $\sqrt{2}:\sqrt{3}$. Their volume are in the ratio of

- a. $\sqrt{3}:\sqrt{2}$ b. $3\sqrt{3}:\sqrt{2}$ c. $\sqrt{2}:\sqrt{3}$ d. $\sqrt{2}:\sqrt{6}$

17. A rectangle sheet of metal is 40 cm by 15 cm. Equal squares of side 4 cm are cut off at the corners and the remainder is folded up to form an open rectangular box. The volume of the box is

- a. 896 cm^3 b. 986 cm^3 c. 600 cm^3 d. 916 cm^3

18. A cone of height 7 cm and the base radius 1 cm is curved from a cuboidal block of wood $10 \text{ cm} * 5 \text{ cm} * 2 \text{ cm}$. The percentage wood wasted in the process is

- a. $92\frac{2}{3}\%$ b. $46\frac{1}{3}\%$ c. $53\frac{2}{3}\%$ d. $7\frac{1}{3}\%$

19. The base of a prism is a right angle triangle with two sides 5 cm and 12 cm. The height of the prism is 10 cm. The total surface area of the prism is

- a. 360 cm^2 b. 300 cm^2 c. 330 cm^2 d. 325 cm^2

20. The volumes of a right circular cylinder and a sphere are equal, the radius of the cylinder and the diameter of the sphere are equal. The ratio of height and radius of the cylinder is

- a. 3:1 b. 1:3 c. 6:1 d. 1:6