

Q1. Find the length of the longest pole that can be placed in a room 30 m long, 24m board and 18 m high?

- (a) $30\sqrt{2}m$ (b) $40\sqrt{2}m$
 (c) $45\sqrt{2}m$ (d) $49\sqrt{2}m$

Q2. A brick measures 20cm × 10cm × 7.5cm. How many bricks will be required for a wall 20m × 2m × 0.75m?

- (a) 25000 (b) 20000
 (c) 15000 (d) 10000

Q3. In a swimming pool measuring 90m by 40m, How much water will be displaced by 150 men, if the displacement of water by one man is 800 cm^3 , what will be the rise in water level?

- (a) 0.66 m (b) 0.44 m
 (c) 0.33 m (d) 0.25 m

Q4. A rectangular water reservoir is 15m × 12m at the base. Water flows into it through a pipe whose cross section is 5 cm by 3 cm at the rate of 16 m/s. Find the height to which water will rise in the reservoir in 25 minutes?

- (a) 0.2 m (b) 0.3 m
 (c) 0.9 m (d) 0.5 m

Q5. The sum of length, breadth and height of a cuboid is 25 cm and its diagonal is 15 cm long. Find the total surface area of cuboid?

- (a) 500 cm^2 (b) 700 cm^2
 (c) 800 cm^2 (d) 400 cm^2

Q6. If the sum of three dimensions and the total surface area of the rectangular box are 12 cm and 94 cm^2 respectively, then the maximum length of the stick that can be placed in the box is?

- (a) $5\sqrt{2}\text{ cm}$ (b) 5 cm
 (c) 6 cm (d) $2\sqrt{5}\text{ cm}$

Q7. Three cubes of volume 1 cm^3 , 216 cm^3 and 512 cm^3 are melted to form a new cube. Find the diagonal of the New cube?

- (a) 15.6 cm (b) 16.6 cm
 (c) 17.6 cm (d) 18.6 cm

Q8. The cost of painting the whole surface area of a cube at the rate of B paise per sq. cm is Rs. 343.98. Then the volume of the cube is?

- (a) 9261 cm^3 (b) 9264 cm^3
 (c) 10248 cm^3 (d) 13310 cm^3

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Q9. Water flows at 10 km per hour through a pipe with cross section a circle of radius 35 cm, into a cistern of dimensions 25 m by 12 m by 10m. By how much will the water level rise in the cistern in 24 minutes?

- (a) 5.13m (b) 5 m
(c) 6 m (d) 6.13m

Q10. A metallic sphere of radius 21 cm is dropped into a cylindrical vessel, which is partially filled with water. The diameter of the vessel is 1.68 metres. If the sphere is completely submerged, find by how much the surface of water will rise?

- (a) 1.75 cm (b) 1.25 cm
(c) 1.55 cm (d) 1.65 cm

Q11. A cylindrical vessel, whose base is 14 dm in diameter holds 2310 litres of water. Taking a litre of water to occupy 1000 cubic cm, what is the height of the vessel in dm?

- (a) 15 dm (b) 16 dm
(c) 17 dm (d) 18 dm

Q12. Find how many pieces of money $\frac{3}{4}$ cm in diameter and $\frac{1}{8}$ cm thick must be melted down to form a cube whose edge is 3 cm long?

- (a) 488.72 (b) 490.12
(c) 450.14 (d) 460.12

Q13. The diameter of a cylindrical tank is 24.5 metres and depth 32 metres. How many metric tons of water will it hold? (one cubic metres of water weighs 1000 kg.)?

- (a) 15091 (b) 15092
(c) 15093 (d) 15094

Q14. The radius and height of a right circular cone are in the ratio 5 : 12 and its volume is 2512 cm³. Find the slant height radius and curved surface area of the cone. (Take $\pi = 3.14$)?

- (a) 26 cm , 10 cm , 816.4 cm² (b) 27 cm , 11 cm , 819.4 cm²
(c) 28 cm , 12 cm , 820.4 cm² (d) 29 cm , 13 cm , 821.4 cm²

Q15. Form a solid right circular with height 10 cm and radius of the base 6 cm, a right circular cone of the same height and base is removed. Find the volume of the remaining solid in cm³?

- (a) $754\frac{2}{7}$ (b) $725\frac{2}{7}$
(c) $726\frac{2}{7}$ (d) $729\frac{2}{7}$

Q16. The slant height of a conical tomb is $17\frac{1}{2}$ metres. If its diameter be 28 metres, find the cost of constructing it at Rs. 135 per cubic metre and also find the cost of white-washing its slant surface at Rs. 3.30 per square metre?

- (a) 291069 , 2543 (b) 291060 , 2541
(c) 291068 , 2548 (d) 291063 , 2545

Q17. If the heights of two cones are in the ratio 1 : 4 and their diameters in the ratio 4 : 5 what is the ratio of their volumes?

- (a) 4 : 25 (b) 25 : 4
(c) 29 : 27 (d) 28 : 25

Q18. Two spheres each of 10m diameter are melted down and recast into a cone with a height equal to the radius of its base, find the height of the cone?

- (a) 20 m (b) 30 m
(c) 10 m (d) 15 m

Q19. How many leaden ball of a $\frac{1}{4}$ cm. in diameter can be cast out of metal of a ball 3 cm in diameter supposing no waste?

- (a) 1728 (b) 1729
(c) 1725 (d) 1724

Q20. A metal sphere of diameter 14 cm is dropped into a cylindrical vessel, which is partly filled with water. The diameter of the vessel is 1.68 metres. If the sphere is completely submerged, find by how much the surface of water will rise?

- (a) 0.58 cm (b) 0.24 cm
(c) 0.54 cm (d) 0.56 cm

Q21. Find the weight of an iron shell, the external and internal diameters of which are 13 cm and 10 cm respectively, if 1 cubic cm of iron weight 8 gms?

- (a) 8.016 kg (b) 5.016 kg
(c) 6.016 kg (d) 7.016 kg

Q22. A hemisphere of lead of radius 7 cm is cast into a right circular cone of height 49 cm. Find the radius of the base?

- (a) 3.74 cm (b) 3.64 cm
(c) 3.94 cm (d) 3.10 cm

Q23. Three solid iron cubes of edges 4 cm 5cm and 6 cm are melted together to make a new cube. 62 cm³ of the melted material is lost due to improper handing. The area (in cm²) of the whole surface of the newly formed cube is?

- (a) 294 (b) 343
(c) 125 (d) 216

Q24. The circumference of the base of a circular is 6π cm. The height of the cylinder is equal to the diameter of the base. How many litres of water can it hold?

- (a) 54π cc (b) 36π cc
(c) 0.054π cc (d) 0.54π cc

Q25. 12 spheres of the same size are made by melting a solid cylinder of 16 cm diameter and 2 cm height. The diameter of each sphere is ?

- (a) 2 cm (b) 4 cm
(c) 3 cm (d) $\sqrt{3}$ cm

Q26. In a right circular cone, the radius of its base is 7 cm and its height 24 cm. A cross-section is made through the midpoint of the height parallel to the base. The volume of the upper portion is?

- (a) 169 cm^3 (b) 154 cm^3
(c) 1078 cm^3 (d) 800 cm^3

Q27. The total surface area of a metallic hemisphere is 1848 cm^2 . The hemisphere is melted to form a solid right circular cone. If the radius of the base of the cone is the same as the radius of the hemisphere its height is?

- (a) 48 cm (b) 26 cm
(c) 28 cm (d) 30 cm

Q28. The height of the cone is 30 cm. A small cone is cut off at the top by a plane parallel to its base. If its volume is $\frac{1}{27}$ of the volume of the cone. At what height above the base, is the section made?

- (a) 6 cm (b) 8 cm
(c) 10 cm (d) 20 cm

Q29. Water flows through a cylindrical pipe. Whose radius is 7 cm, at 5 metre per second. The time, it takes to fill an empty water tank with height 1.54 metres and area of the base (3×5) square metres, is (take $\pi = \frac{22}{7}$)?

- (a) 6 minutes (b) 5 minutes
(c) 10 minutes (d) 9 minutes

Q30. In a cylindrical vessel diameter 24 cm filled up with sufficient quantity of water, a solid spherical ball of radius 6 cm is completely immersed. Then the increase in height of water level is?

- (a) 1.5 cm (b) 2 cm
(c) 3 cm (d) 4.2 cm

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