

**Q1.** 2 cm of rain has fallen on a square km of land. Assuming that 50% of the raindrops could have been collected and contained in a pool having a 100 m × 10 m base, by what level would the water level in the pool have increased?

- (a) 1 km (b) 10 km  
(c) 10 cm (d) 1 m

**Q2.** A square of side 3 cm is cut off from each corner of a rectangular sheet of length 24 cm and breadth 18 cm and the remaining sheet is folded to form an open rectangular box. The surface area of the box is?

- (a) 468 cm<sup>2</sup> (b) 396 cm<sup>2</sup>  
(c) 615 cm<sup>2</sup> (d) 423 cm<sup>2</sup>

**Q3.** A solid metallic cone of height 10 cm, radius of base 20 cm is melted to make spherical balls each of 4 cm diameter. How many such balls can be made?

- (a) 25 (b) 75  
(c) 50 (d) 125

**Q4.** The volume of a right circular cylinder is equal to the volume of that right circular cone whose height is 108 cm and diameter of base is 30 cm. If the height of the cylinder is 9 cm, the diameter of its base is?

- (a) 30 cm (b) 60 cm  
(c) 50 cm (d) 40 cm

**Q5.** The base of a conical tent is 19.2 metres in diameter and the height is 2.8 metres. The area of the canvas required to put up such a tent (in square metres) (taking  $\pi = \frac{22}{7}$ ) is nearly?


- (a) 3017.1 (b) 3170  
(c) 301.7 (d) 30.17

**Q6.** A sphere of radius 2 cm is put into water contained in a cylinder of base radius 4 cm. If the sphere is completely immersed in the water, the water level in the cylinder rise by?

- (a) 1/3 cm (b) 1/2 cm  
(c) 2/3 cm (d) 2 cm

**Q7.** Each of the measure of the radius of base of a cone and that of a sphere is 8 cm. Also, the volume of these two solids are equal. The slant height of the cone is?

- (a)  $8\sqrt{17}$  cm (b)  $4\sqrt{17}$  cm  
(c)  $34\sqrt{2}$  cm (d) 34 cm



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- Q8.** The diameter of the iron ball used for the shot-put game is 14 cm. It is melted and then a solid cylinder of height  $2\frac{1}{3}$  cm is made. What will be the diameter of the base of the cylinder?
- (a) 14 cm (b) 28 cm  
(c)  $14/3$  cm (d)  $28/3$  cm
- Q9.** A conical cup is filled with ice cream. The forms a hemispherical shape on its open top. The height of the hemispherical part is 7 cm. The radius of the hemispherical part equals to the height of the cone. Then the volume of the ice-cream is  $\left[\pi = \frac{22}{7}\right]$ ?
- (a) 1078 cubic cm (b) 1708 cubic cm  
(c) 7108 cubic cm (d) 7180 cubic cm
- Q10.** A hemispherical bowl of internal radius 15 cm contains a liquid. The liquid is to be filled into cylindrical shaped bottles of diameter 5 cm and height 6 cm. The number of bottles required to empty the bowl is?
- (a) 30 (b) 40  
(c) 50 (d) 60
- Q11.** The numerical values of the volume and the area of the lateral surface of a right circular cone are equal. If the height of the cone be h and radius be r, the value of  $\frac{1}{h^2} + \frac{1}{r^2}$  is?
- (a)  $9/1$  (b)  $3/1$   
(c)  $1/3$  (d)  $1/9$
- Q12.** A right triangle with sides 9 cm, 12 cm and 15 cm is rotated about the side of 9 cm to form a cone. The volume of the cone so formed is ?
- (a)  $432\pi$  cm<sup>3</sup> (b)  $327\pi$  cm<sup>3</sup>  
(c)  $334\pi$  cm<sup>3</sup> (d)  $324\pi$  cm<sup>3</sup>
- Q13.** A river 3 m deep and 40 m wide is flowing at the rate of 2 km per hour, how much water (in-litres) will fall to into the sea in a minute?
- (a) 4,00,000 m<sup>3</sup> (b) 40,00,000 m<sup>3</sup>  
(c) 40,000 m<sup>3</sup> (d) 4,000 m<sup>3</sup>
- Q14.** A plate of square base made of brass is of length x cm and thickness 1 mm. The plate weights 4725 gm. If 1 cubic cm of brass weighs 8.4 gram, then the value of x is?
- (a) 76 (b) 72  
(c) 74 (d) 75
- Q15.** The base of a right prism is a right angled triangle whose sides are 5 cm, 12 cm and 13 cm. If the total surface area of the prism is 360 cm<sup>2</sup>, then its height (in cm) is?
- (a) 10 (b) 12  
(c) 9 (d) 11
- Q16.** Given a solid cylinder of radius 10 cm and length 1000 cm, a cylindrical hole is made into it to obtain a cylindrical shell of uniform thickness and having volume equal to one-fourth of the original cylinder. The thickness of the cylindrical shell is?
- (a)  $5(\sqrt{5} - 2)$  cm (b)  $5(2 - \sqrt{3})$  cm  
(c) 5 cm (d)  $5\sqrt{2}$  cm

**Q17.** A monument has 50 cylindrical pillars each of diameter 50 cm and height 4 m, what will be the labour charges for getting these pillars cleared at the rate of 50 paise per m<sup>2</sup> (Use  $\pi = 3.14$ )?

- (a) Rs. 237 (b) Rs. 157  
(c) Rs. 257 (d) Rs. 353

**Q18.** Sixteen cylindrical cans, each with a radius of 1 unit, are placed inside a cardboard box four in a row. If the cans touch the adjacent cans and or the walls of the box, then which of the following could be the interior area of the bottom of the box in square units?

- (a) 16 (b) 32  
(c) 64 (d) 128

**Q19.** A hemispherical bowl is 176 cm round the brim. Supposing it to be half full, how many persons may be swerved from it in hemispherical glasses 4 cm in diameter at the top?

- (a) 1372 (b) 1272  
(c) 1172 (d) 1472

**Q20.** The base of a prism is a regular hexagon. If every edge of the prism measures 1 metre and height is 1 metre, than volume of the prism is?

- (a)  $\frac{3\sqrt{2}}{2}$  cu. m (b)  $\frac{3\sqrt{3}}{2}$  cu. m  
(c)  $\frac{6\sqrt{2}}{5}$  cu. m (d)  $\frac{5\sqrt{3}}{2}$  cu. m

**Q21.** A oil funnel made of tin sheet consists of a 10 cm long cylindrical portion attached to 22 cm, diameter of the cylindrical portion is 8 cm and the diameter of the top of the funnel is 18 cm, find the area of the tin sheet required to make a funnel?

- (a) 728.57 cm<sup>3</sup> (b) 782.57 cm<sup>3</sup>  
(c) 872.57 cm<sup>3</sup> (d) 827.57 cm<sup>3</sup>

**Q22.** A conical tent is to accommodate 10 persons, Each person must have 6 m<sup>2</sup> space to sit and 30 m<sup>3</sup> of air to breadth. What will be the height of the cone?

- (a) 37.5 m (b) 150 m  
(c) 75 m (d) None of these

**Q23.** A circular tent is cylindrical to a height of 3 metres and conical above it. If its diameter is 105 m and the slant height of the conical portion is 53 m, calculate the length of the canvas 6 m wide to make the required tent?

- (a) 3994 m (b) 973.5 m  
(c) 1947 m (d) 1800 m

**Q24.** A solid sphere of radius 6 cm is melted into a hollow cylinder of uniform thickness. If external radius of the base of the cylinder is 5 cm and its height is 32 cm, find the uniform thickness of the cylinder?

- (a) 2 cm (b) 3 cm  
(c) 1 cm (d) 3.5 cm

Q25. A solid is in the form of a cylinder with hemispherical ends. The total height of the solid is 19 cm and the diameter of the cylinder is 7 cm. Find the total surface area of the solid. (Use  $\pi = 22/7$ )?

- (a) 398.75 cm<sup>2</sup> (b) 418 cm<sup>2</sup>  
(c) 444 cm<sup>2</sup> (d) 412 cm<sup>2</sup>

Q26. Two cm of rain has fallen on a square km of land. Assuming that 40% of the raindrops could have been collected and contained in a pool having a 200 m × 20 m base, by what level would the water level in the pool have increased?

- (a) 2 m (b) 1 m  
(c) 4 m (d) 1.5 m

Q27. The edge of a cube is increased by 100% the surface area of the cube is increased by?

- (a) 100% (b) 200%  
(c) 300% (d) 400%

Q28. A cylindrical cistern whose diameter is 21 cm is partly filled with water. If a rectangular block of iron 14 cm in length, 10.5 cm in breadth and 11 cm in thickness is wholly immersed in water, by how many centimetres will the water level rise?

- (a) 14 cm (b) 20 cm  
(c) 14/3 cm (d) 12 cm

Q29. If 'h' be the height of a pyramid standing on a base which is an equilateral triangle of side 'a' units, then the slant edge is?

- (a)  $\sqrt{h^2 + \frac{a^2}{4}}$  (b)  $\sqrt{h^2 + \frac{a^2}{8}}$   
(c)  $\sqrt{h^2 + \frac{a^2}{3}}$  (d)  $\sqrt{h^2 + a^2}$

Q30. The height of a right circular cone and the radius of its circular base are respectively 9 cm and 3 cm. The cone is cut by a plane parallel to its base so as to divide it into two parts. The volume of the frustum (i.e., the lower part) of the cone is 44 cubic cm. The radius of the upper circular surface of the frustum (taken  $\pi = \frac{22}{7}$ ) is?

- (a)  $\sqrt[3]{12}$  cm (b)  $\sqrt[3]{13}$  cm  
(c)  $\sqrt[3]{17}$  cm (d)  $\sqrt[3]{20}$  cm

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