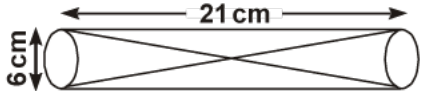
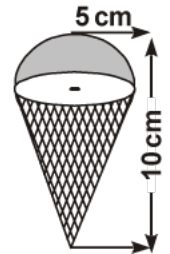


- Q1.** Three metallic solid cubes whose edges are 3 cm, 4 cm and 5 cm are melted and formed into a single cube. Find the edge of the cube so formed.
- Q2.** How many shots each having diameter 3 cm be made from a cuboidal lead solid of dimensions 9 cm × 11 cm × 12 cm?
- Q3.** A bucket is in the form of a frustum of a cone and holds 28.490 L of water. The radii of the top and bottom are 28 cm and 21 cm, respectively. Find the height of the bucket.
- Q4.** Two identical cubes each of volume  $64 \text{ cm}^3$  are joined together end to end. What is the surface area of the resulting cuboid?
- Q5.** Two cones with same base radius 8 cm and height 15 cm are joined together along their bases. Find the surface area of the shape so formed.
- Q6.** How many spherical lead shots each of diameter 4.2 cm can be obtained from a solid rectangular lead piece with dimensions 66 cm, 42 cm and 21 cm?
- Q7.** How many spherical lead shots of diameter 4 cm can be made out of a solid cube of lead whose edge of lead whose edge measures 44 cm.
- Q8.** A solid metallic hemisphere of radius 8 cm is melted and recasted into a right circular cone of base radius 6 cm. Determine the height of the cone.
- Q9.** A rectangular water tank of base 11 m × 6 m contains water upto a height of 5 m. If the water in the tank is transferred to a cylindrical tank of radius 3.5 m, find the height of the water level in the tank.
- Q10.** 16 glass spheres each of radius 2 cm are packed into a cuboidal box of internal dimensions 16 cm × 8 cm × 8 cm and then the box is filled with water. Find the volume of water filled in the box.
- Q11.** A solid iron cuboidal block of dimensions 4.4 m × 2.6 m × 1 m is recast into a hollow cylindrical pipe of internal radius 30 cm and thickness 5 cm. Find the length of the pipe.
- Q12.** Water is flowing at the rate of  $15 \text{ km h}^{-1}$  through a pipe of diameter 14 cm into a cuboidal pond which is 50 m long and 44 m wide. In what time will the level of water in pond rise by 21 cm?
- Q13.** A factory manufactures 120000 pencils daily. The pencils are cylindrical in shape each of length 25 cm and circumference of base as 1.5 cm. Determine the cost of colouring the curved surfaces of the pencils manufactured in one day at Rs. 0.05 per  $\text{dm}^2$ .
- Q14.** From a solid cube of side 7 cm, a conical cavity of height 7 cm and radius 3 cm is hollowed out. Find the volume of the remaining solid.
- Q15.** A cone of radius 8 cm height 12 cm is divided into two parts by a plane through the mid-point of its axis parallel to its base. Find the ratio of the volumes of two parts.
- Q16.** Two solid cones A and B are placed in a cylindrical tube as shown in the figure. The ratio of their capacities is 2 : 1. Find the heights and capacities of cones. Also, find the volume of the remaining portion of the cylinder.
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- Q17.** Find the number of metallic circular disc with 1.5 cm base diameter and of height 0.2 cm to be melted to form a right circular cylinder of height 10 cm and diameter 4.5 cm.

- Q18.** A wall 24 m long, 0.4 m thick and 6 m high is constructed with the bricks each of dimensions  $25\text{ cm} \times 16\text{ cm} \times 10\text{ cm}$ . If the mortar occupies  $\frac{1}{10}$  th of the volume of the wall, then find the number of bricks used in constructing the wall.
- Q19.** Marbles of diameter 1.4 cm are dropped into a cylindrical beaker of diameter 7 cm containing some water. Find the number of marbles that should be dropped into the beaker, so that the water level rises by 5.6 cm.
- Q20.** An ice-cream cone full of ice-cream having radius 5 cm and height 10 cm as shown in figure. Calculate the volume of ice-cream, provided that its  $\frac{1}{6}$  part is left unfilled with ice-cream.



- Q21.** 500 persons are taking a dip into a cuboidal pond which is 80 m long and 50 m broad. What is the rise of water level in the pond, if the average displacement of the water by a person is  $0.04\text{ m}^3$ ?
- Q22.** A heap of rice is in the form of a cone of diameter 9 m and height 3.5 m. Find the volume of the rice. How much canvas cloth is required to just cover heap?
- Q23.** Water flows at the rate of  $10\text{ m min}^{-1}$  through a cylindrical pipe 5 mm in diameter. How long would it take to fill a conical vessel whose diameter at the base is 40 cm and depth 24 cm?
- Q24.** The barrel of a fountain pen, cylindrical in shape, is 7 cm long and 5 mm in diameter. A full barrel of ink in the pen is used up on writing 3300 words on an average. How many words can be written in a bottle of ink containing one-fifth of a litre?
- Q25.** How many cubic centimetres of iron is required to construct an open box whose external dimensions are 35 cm, 25 cm and 16.5 cm provided the thickness of the iron is 1.5 cm. If one cubic centimetre of iron weighs 7.5 g, then find the weight of the box.
- Q26.** A hemispherical bowl of internal radius 9 cm is full of liquid. The liquid is to be filled into cylindrical shaped bottles each of radius 1.5 cm and height 4 cm. How many bottles are needed to empty the bowl?
- Q27.** A building is in the form of a cylinder surmounted by a hemispherical valuted dome and contains  $41\frac{19}{21}\text{ m}^3$  of air. If the internal diameter of dome is equal to its total height above the floor, find the height of the building.
- Q28.** A rocket is in the form of a right circular cylinder closed at the lower end and surmounted by a cone with the same radius as that of the cylinder. The diameter and height of the cylinder are 6 cm and 12 cm, respectively. If the slant height of the conical portion is 5 cm, then find the total surface area and volume of the rocket. (Use  $\pi = 3.14$ )
- Q29.** A cylindrical bucket of height 32 cm and base radius 18 cm is filled with sand. This bucket is emptied on the ground and a conical heap of sand is formed. If the height of the conical heap is 24 cm, find the radius and slant height of the heap.
- Q30.** A milk container of height 16 cm is made of metal sheet in the form of a frustum of a cone with radii of its lower and upper ends as 8 cm and 20 cm, respectively. Find the cost of milk at the rate of Rs. 22 per L which the container can hold.
- Q31.** A pen stand made of wood is in the shape of a cuboid with four conical depressions and a cubical depression to hold the pens and pins, respectively. The dimensions of cuboid are 10 cm, 5 cm and 4 cm. The radius of each of the conical depressions is 0.5 cm and the depth is 2.1 cm. The edge of the cubical depression is 3 cm. Find the volume of the wood in the entire stand.

- Q32.** The rain water from a roof of dimensions  $22\text{ m} \times 20\text{ m}$  drains into a cylindrical vessel having diameter of base  $2\text{ m}$  and height  $3.5\text{ m}$ . If the rain water collected from the roof just fill the cylindrical vessel, then find the rainfall (in cm).
- Q33.** Water flows through a cylindrical pipe, whose inner radius is  $1\text{ cm}$ , at the rate of  $80\text{ cm}^{-1}$  in an empty cylindrical tank, the radius of whose base is  $40\text{ cm}$ . What is the rise of water level in tank in half an hour?
- Q34.** A solid right circular cone of height  $120\text{ cm}$  and radius  $60\text{ cm}$  is placed in a right circular cylinder full of water of height  $180\text{ cm}$ . Such that it touches the bottom. Find the volume of water left in the cylinder, if the radius of the cylinder is equal to the radius of the cone.

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- S1.**  $R = 6$  cm.
- S2.** 84 (Approx.).
- S3.** 15 cm.
- S4.**  $160 \text{ cm}^2$ .
- S5.**  $855 \text{ cm}^2$ .
- S6.** 1500.
- S7.** 2541.
- S8.** 28.44 cm.
- S9.** 8.6 m.
- S10.**  $487.6 \text{ cm}^3$ .
- S11.** 112 m.
- S12.** 2 hours.
- S13.** Rs. 2250.
- S14.**  $277 \text{ cm}^3$ .
- S15.** 1 : 7.
- S16.**  $396 \text{ cm}^2$ .
- S17.** 450.
- S18.** 12960.
- S19.** 150.
- S20.**  $327.4 \text{ cm}^3$ .
- S21.** 0.5 cm.
- S22.** Volume of rice =  $74.25 \text{ m}^3$ , Canvas =  $80.61 \text{ m}^2$ .
- S23.** 51 min 12 sec.
- S24.** 480000.
- S25.** 29.7 kg.
- S26.** 54.

**S27.** 4 m.

**S28.** Volume =  $376.8 \text{ cm}^3$ , T.S.A. =  $301.44 \text{ cm}^2$ .

**S29.** Radius = 36 cm, Slant height = 43.267 cm.

**S30.** 230.12

**S31.**  $170.8 \text{ cm}^3$ .

**S32.** The rainfall is 2.5 cm.

**S33.** 90 cm.

**S34.**  $1.584 \text{ m}^3$ .

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