

SECTION – A

5 x 1 = 5

- The radius of a sphere is  $r$  cm. it is divided into two equal parts. The whole surface area of two parts will be:
- If the surface areas of two spheres are in the ratio 16:9, then their volumes will be in the ratio:
- If a solid right circular cone of height 24cm and base radius 6cm is melted and recast in the shape of a sphere, then radius of the sphere is:
- Eight solid spheres of the same size are made by melting a solid metallic cylinder of base diameter 6cm and height 32cm. the diameter of each sphere is:
- The slant height of a bucket is 26cm. the diameter of upper and lower circular ends are 36cm and 16cm respectively. The height of the bucket is:

SECTION – B

5 X 2 = 10

- Three cubes each of side 15cm are joined end to end. Find the total surface area of the resulting cuboid.
- Volume of two spheres are in the ratio 64: 27. Find the ratio of their surface areas.
- Three cubes of a metal whose edges are in the ratio 3: 4: 5 are melted and converted into a single cube whose edge is 12cm. find the edges of the three cubes.
- The slant height of a frustum of a cone is 4cm and the perimeters (circumference) of its circular ends are 18cm and 6cm. find the curved surface area of the frustum.
- From a solid cylinder whose height is 7cm and radius 6cm, a conical cavity of height 7cm and base radius 6cm is taken out. Find the volume of the remaining solid.

SECTION – C

5 X 3 = 15

- The inner diameter of a cylindrical wooden pipe is 24cm and its outer diameter is 28cm. the length of the pipe is 35cm. find the mass of the pipe of the in kg, if  $1\text{cm}^3$  of wood = 0.6 gram.
- The radii of a circular ends of a frustum of a cone are 33cm and 27cm. its slant height is 10cm. find its volume and total surface area.
- A well of diameter 3m is dug 14m deep. The earth taken out of it has been evenly spread all around it in the shape of a circular ring of width 4m to form an embankment. Find the height of the embankment.
- A hemispherical bowl of internal diameter 36cm is full of some liquid which is to be filled in cylindrical bottles of radius 3cm and height 6cm. find the number of bottles needed to empty the bowl.
- A fez, the cap used by the Turks, is shaped like the frustum of a cone. Is its radius of the open side is 10cm, radius at the upper base is 4cm and its slant height is 15cm. find the area of material used for making it.

SECTION – D

5 X 4 = 20

- A tent is of the shape of a right circular cylinder up to a height of 3 meters and conical above it. The total height of the tent is 13.5 meters above the ground. Calculate the cost of painting the inner side of the tent at the rate of 2 Rupees per square meter, if the radius of the base is 14 meters.

17. A gulab jamun contains sugar syrup up to about 30% of its volume. Find approximately how much syrup would be found in 45 such gulab jamuns, each shaped like a cylinder with two hemispherical ends with total length 5cm and diameter 2.8 cm.
18. A well whose diameter is 7m has been dug 22.5 m deep and the earth dug it is used to form an embankment around it. If the height of the embankment is 1.5m, find the width of the embankment.
19. The height of a cone is 30cm. a small cone is cut off at the top by a plane parallel to the base. If its volume be  $\frac{1}{27}$ th volume of the cone, at what height above the base is the section made?
20. A metallic right circular con 20cm high and whose vertical angle is  $60^\circ$  is cut into two parts in the middle of its height by a plane parallel to the base. If the frustum so obtained is drawn into a wire of diameter  $\frac{1}{16}$ cm, find the length of the wire.