

- Q1.** The material of a cone is converted into the shape of a cylinder of equal radius. If height of the cylinder is 5 cm, then height of the cone is
(a) 10 cm (b) 15 cm (c) 18 cm (d) 24 cm
- Q2.** A solid sphere of radius r is melted and cast into the shape of a solid cone of height r , the radius of the base of the cone is
(a) $2r$ (b) $3r$ (c) r (d) $4r$
- Q3.** A metallic sphere of radius 10.5 cm is melted and then recast into small cones, each of radius 3.5 cm and height 3 cm. The number of such cones is
(a) 63 (b) 126 (c) 21 (d) 130
- Q4.** The diameter of a sphere is 6 cm. It is melted and drawn into a wire of diameter 2 mm. The length of the wire is
(a) 12 m (b) 18 m (c) 36 m (d) 66 m
- Q5.** The surface area of a sphere is 616 cm^2 . Find its radius.
- Q6.** How many balls, each of radius 1 cm, can be made from a solid sphere of lead of radius 8 cm?
- Q7.** Three cubes each of side 5 cm are joined end to end. Find the surface area of the resulting cuboid.
- Q8.** Three cubes whose edges measure 3 cm, 4 cm and 5 cm respectively to form a single cube. Find its edge. Also, find the surface area of the new cube.
- Q9.** Two cubes each of 10 cm edge are joined end to end. Find the surface area of the resulting cuboid.
- Q10.** The number of solid spheres, each of diameter 6 cm that could be moulded to form a solid metal cylinder of height 45 cm and diameter 4 cm, is
(a) 3 (b) 4 (c) 5 (d) 6
- Q11.** A sphere of radius 6 cm is dropped into a cylindrical vessel partly filled with water. The radius of the vessel is 8 cm. If the sphere is submerged completely, then the surface of the water rises by
(a) 4.5 cm (b) 3 cm (c) 4 cm (d) 2 cm
- Q12.** If a cone is cut into two parts by a horizontal plane passing through the mid-point of its axis, the ratio of the volumes of the upper part and the cone is
(a) 1 : 2 (b) 1 : 4 (c) 1 : 6 (d) 1 : 8
- Q13.** A solid consists of a circular cylinder with an exact fitting right circular cone placed at the top. The height of the cone is h . If the total volume of the solid is 3 times the volume of the cone, then the height of the circular cylinder is
(a) $2h$ (b) $\frac{2h}{3}$ (c) $\frac{3h}{2}$ (d) $4h$
- Q14.** A reservoir is in the shape of a frustum of a right circular cone. It is 8 m across at the top and 4 m across at the bottom. If it is 6 m deep, then its capacity is
(a) 176 m^3 (b) 196 m^3 (c) 200 m^3 (d) 110 m^3

- Q15.** A cylindrical vessel 32 cm high and 18 cm as the radius of the base, 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, the radius of its base is
- (a) 12 cm (b) 24 cm (c) 36 cm (d) 48 cm
- Q16.** The curved surface area of a right circular cone of height 15 cm and base diameter 16 cm is
- (a) $60\pi \text{ cm}^2$ (b) $68\pi \text{ cm}^2$ (c) $120\pi \text{ cm}^2$ (d) $136\pi \text{ cm}^2$
- Q17.** The curved surface area of a cylinder is 264 m^2 and its volume is 924 m^3 . The ratio of its diameter to its height is
- (a) 3 : 7 (b) 7 : 3 (c) 6 : 7 (d) 7 : 6
- Q18.** A cylinder with base radius of 8 cm and height of 2 cm is melted to form a cone of height 6 cm. The radius of the cone is
- (a) 4 cm (b) 5 cm (c) 6 cm (d) 8 cm
- Q19.** The volumes of two spheres are in the ratio 64 : 27. The ratio of their surface areas is
- (a) 1 : 2 (b) 2 : 3 (c) 9 : 16 (d) 16 : 9
- Q20.** The surface area of a sphere is same as the curved surface area of a right circular cylinder whose height and diameter are 12 cm each. The radius of the sphere is
- (a) 3 cm (b) 4 cm (c) 6 cm (d) 12 cm
- Q21.** 12 spheres of the same size are made from melting a solid cylinder of 16 cm diameter and 2 cm height. The diameter of each sphere is
- (a) $\sqrt{3}$ cm (b) 2 cm (c) 3 cm (d) 4 cm
- Q22.** A solid metallic spherical ball of diameter 6 cm is melted and recast into a cone with diameter of the base as 12 cm. The height of the cone is
- (a) 2 cm (b) 14 cm (c) 4 cm (d) 6 cm
- Q23.** A solid consists of a circular cylinder surmounted by a right circular cone. The height of the cone is h . If the total height of the solid is 3 times the volume of the cone, then the height of the cylinder is
- (a) $2h$ (b) $\frac{3h}{2}$ (c) $\frac{h}{2}$ (d) $\frac{2h}{3}$
- Q24.** The maximum volume of a cone that can be carved out of a solid hemisphere of radius r is
- (a) $3\pi r^2$ (b) $\frac{\pi r^3}{3}$ (c) $\frac{\pi r^2}{3}$ (d) $3\pi r^3$
- Q25.** A right circular cylinder of radius r and height h ($h = 2r$) just encloses a sphere of diameter
- (a) h (b) r (c) $2r$ (d) $2h$
- Q26.** The radii of the circular ends of a frustum are 6 cm and 14 cm. If its slant height is 10 cm, then its vertical height is
- (a) 6 cm (b) 8 cm (c) 4 cm (d) 7 cm
- Q27.** If four times the sum of the areas of two circular faces of a cylinder of height 9 cm is equal to twice the curved surface area, then diameter of the cylinder is
- (a) 4 cm (b) 8 cm (c) 2 cm (d) 6 cm
- Q28.** If the radius of the base of a right circular cylinder is halved, keeping the height the same, then the ratio of the volume of the cylinder thus obtained to the volume of original cylinder is
- (a) 1 : 2 (b) 2 : 1 (c) 1 : 4 (d) 4 : 1

- Q29.** The diameter of a metallic sphere is 6 cm. It is melted and drawn into a wire having diameter of the cross-section as 0.2 cm. Find the length of the wire.
- Q30.** The dimensions of a metallic cuboid are: 100 cm × 80 cm × 64 cm. It is melted and recast into a cube. Find the surface area of the cube.
- Q31.** Find the number of coins, 1.5 cm in diameter and 0.2 cm thick, to be melted to form a right circular cylinder of height 10 cm and diameter 4.5 cm.
- Q32.** A glass cylinder with diameter 20 cm has water to a height of 9 cm. A metal cube of 8 cm edge is immersed in it completely. Calculate the height by which water will rise in the cylinder.
- Q33.** The largest sphere is carved out of a cube of a side 7 cm. Find the volume of the sphere.
- Q34.** Determine the ratio of the volume of a cube to that of a sphere which will exactly fit inside the cube.
- Q35.** Find the maximum volume of a cone that can be carved out of a solid hemisphere of radius r .
- Q36.** How many spherical bullets each of 5 cm in diameter can be cast from a rectangular block of metal 11 dm × 1 m × 5 dm?
- Q37.** A spherical ball of radius 3 cm is melted and recast into three spherical balls. The radii of the two of the balls are 1.5 cm and 2 cm respectively. Determine the diameter of the third ball.
- Q38.** 50 circular plates each of diameter 14 cm and thickness 0.5 cm, are placed one above the other to form a right circular cylinder. Find its total surface area.
- Q39.** A path 2 m wide surrounds a circular pond of diameter 40 m. How many cubic metres of gravel are required to grave the path to a depth of 20 cm?
- Q40.** Find the volume of the largest right circular cone that can be cut out of a cube whose edge is 9 cm.
- Q41.** A hollow sphere of internal and external diameters 4 cm and 8 cm respectively is melted into a cone of base diameter 8 cm. Calculate the height of the cone.
- Q42.** A copper sphere of radius 3 cm is melted and recast into a right circular cone of height 3 cm. Find the radius of the base of the cone.
- Q43.** A metallic sphere 2 dm in diameter is beaten into a circular sheet of uniform thickness equal to 1 mm. Find the radius of the sheet.
- Q44.** Three solid spheres of radii 3, 4 and 5 cm respectively are melted and converted into a single solid sphere. Find the radius of this sphere.
- Q45.** 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.
- Q46.** Find the volume of the largest right circular cone that can be cut out of a cube whose edge is 9 cm.
- Q47.** A boiler is in the form of a cylinder 2 m long with hemispherical ends each of 2 metre diameter. Find the volume of the boiler.
- Q48.** The largest sphere is to be curved out of a right circular cylinder of radius 7 cm and height 14 cm. Find the volume of the sphere.
- Q49.** The radii of the bases of a cylinder and a cone are in the ratio 3 : 4 and their heights are in the ratio 2 : 3. What is the ratio of their volumes?
- Q50.** If the heights of two right circular cones are in the ratio 1 : 2 and the perimeters of their bases are in the ratio 3 : 4, what is the ratio of their volumes?
- Q51.** If a cone and a sphere have equal radii and equal volumes. What is the ratio of the diameter of the sphere to the height of the cone?

- Q52.** Two cubes have their volumes in the ratio 1 : 27. What is the ratio of their surface areas?
- Q53.** What is the ratio of the volumes of a cylinder, a cone and a sphere, if each has the same diameter and same height?
- Q54.** If the radii of the circular ends of a bucket 24 cm high are 5 cm and 15 cm respectively, find the surface area of the bucket.
- Q55.** The largest possible sphere is curved out of a wooden solid cube of side 7 cm. Find the volume of the wood left. (Use $\pi = 22/7$).
- Q56.** The largest cone is curved out from one face of solid cube of side 21 cm. Find the volume of the remaining solid.
- Q57.** A cylinder and a cone are of the same base radius and of same height. Find the ratio of the value of the cylinder to that of the cone.
- Q58.** A right circular cone is of height 8.4 cm and the radius of its base is 2.1 cm. It is melted and recast into a sphere. Find the radius of the sphere.
- Q59.** If the diameter of cross-section of a wire is decreased by 5% how much percent will the length be increased so that the volume remains the same?
- Q60.** A solid sphere of radius 3 cm is melted and then cast into small spherical balls each of diameter 0.6 cm. Find the number of balls thus obtained.
- Q61.** How many spherical bullets can be made out of a solid cube of lead whose edge measures 44 cm, each bullet being 4 cm in diameter.
- Q62.** How many spherical lead shots each 4.2 cm in diameter can be obtained from a rectangular solid of lead with dimensions 66 cm, 42 cm, 21 cm. (Use $\pi = 22/7$).
- Q63.** A sphere of diameter 6 cm dropped in a right circular cylindrical vessel partly filled with water. The diameter of the cylindrical vessel is 12 cm. If the sphere is completely submerged in water, by how much will the level of water rise in the cylindrical vessel?
- Q64.** A hemispherical bowl of internal diameter 36 cm contains a liquid. This liquid is to be filled in cylindrical bottles of radius 3 cm and height 6 cm. How many bottles are required to empty the bowl?
- Q65.** A conical vessel whose internal radius is 5 cm and height 24 cm is full of water. The water is emptied into a cylindrical vessel with internal radius 10 cms. Find the height to which the water rises.
- Q66.** 2.2 cubic dm of brass is to be drawn into a cylindrical wire 0.50 cm in diameter. Find the length of the wire.
- Q67.** A hemispherical tank of radius 1.75 m is full of water. It is connected with a pipe which empties it at the rate of 7 litres per second. How much time will it take to empty the tank completely?
- Q68.** 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 will be used up on writing 330 words on an average. How many words would use up a bottle of ink containing one fifth of a litre?
- Q69.** The cost of painting the total outside surface of a closed cylindrical oil tank at 60 paise per sq. in Rs. 237.60. The height of the tank is 6 times the radius of the base of the tank. Find its volume correct to two decimal places.
- Q70.** The radii of the internal and external surfaces of a metallic spherical shell are 3 cm and 5 cm respectively. It is melted and recast into a solid right circular cylinder of height $10\frac{2}{3}$ cm. Find the diameter of the base of the cylinder.

- Q71.** Two solid right circular cones have the same height. The radii of their bases are r_1 and r_2 . They are melted and recast into a cylinder of same height. Show that the radius of the base of the cylinder is $\sqrt{\frac{r_1^2 + r_2^2}{3}}$.
- Q72.** The radii of the bases of two right circular solid cones of same height are r_1 and r_2 respectively. The cones are melted and recast into a solid sphere of radius R . Show that the height of each cone is given by $h = \frac{4R^3}{r_1^2 + r_2^2}$.
- Q73.** A hemispherical tank full of water is emptied by a pipe at the rate of $3\frac{4}{7}$ litres per second. How much time will it take to make the tank half-empty, if the tank is 3 m in diameter?
- Q74.** A cylindrical vessel having diameter equal to its height is full of water which is poured into two identical cylindrical vessels with diameter 42 cm and height 21 cm which filled completely. Find the diameter of the cylindrical vessel.
- Q75.** A 16 m deep well with diameter 3.5 m is dug up and the earth from it is spread evenly to form a platform 27.5 m by 7 m. Find the height of the platform.
- Q76.** A cylindrical bucket, 32 cm high and 18 cm of radius of the base, 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.
- Q77.** Rain water, which falls on a flat rectangular surface of length 6 m and breadth 4 m is transferred into a cylindrical vessel of internal radius 20 cm. What will be the height of water in the cylindrical vessel if a rainfall of 2 cm has fallen? [Use $\pi = 22/7$]
- Q78.** A conical flask is full of water. The flask has base-radius r and height h . The water is poured into a cylindrical flask of base-radius mr . Find the height of water in the cylindrical flask.
- Q79.** A rectangular tank 15 m long and 11 m broad is required to receive entire liquid contents from a full cylindrical tank of internal diameter 21 m and length 5 m. Find the least height of the tank that will serve the purpose.
- Q80.** A hemispherical bowl of internal radius 9 cm is full of liquid. This liquid is to be filled into cylindrical shaped small bottles each of diameter 3 cm and height 4 cm. How many bottles are necessary to empty the bowl?
- Q81.** A cylindrical tub of radius 12 cm contains water to a depth of 20 cm. A spherical ball is dropped into the tub and the level of the water is raised by 6.75 cm. Find the radius of the ball.
- Q82.** 500 persons have to dip in a rectangular tank which is 90 m long and 50 m broad. What is the rise in the level of water in the tank, if the average displacement of water by a person is 0.04 m^3 ?
- Q83.** A cylindrical jar of radius 6 cm contains oil. Iron spheres each of radius 1.5 cm are immersed in the oil. How many spheres are necessary to raise the level of the oil by two centimetres?
- Q84.** A hollow sphere of internal and external radii 2 cm and 4 cm respectively is melted into a cone of base radius 4 cm. Find the height and slant height of the cone.
- Q85.** A cylindrical tub of radius 12 cm contains water to a depth of 20 cm. A spherical form ball of radius 9 cm is dropped into the tub and thus the level of water is raised by h cm. what is the value of h ?
- Q86.** A spherical ball of radius 3 cm is melted and recast into three spherical balls. The radii of two of the balls are 1.5 cm and 2 cm. Find the diameter of the third ball.
- Q87.** Prove that the surface area of sphere is equal to the curved surface area of the circumscribed cylinder.
- Q88.** The diameter of a metallic sphere is equal to 9 cm. It is melted and drawn into a long wire of diameter 2mm having uniform cross-section. Find the length of the wire.

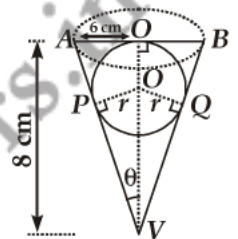
- Q89.** A tent of height 77 dm is in the form a right circular cylinder of diameter 36 m and height 44 dm surrounded by a right circular cone. Find the cost of the canvas at Rs. 3.50 per m². [Use $\pi = 22/7$]
- Q90.** A vessel in the shape of a cuboid contains some water. If three identical spheres are immersed in the water, the level of water is increased by 2 cm. If the area of the base of the cuboid is 160 cm² and its height 12 cm, determine the radius of any of the spheres.
- Q91.** The diameters of internal and external surfaces of a hollow spherical shell are 10 cm and 6 cm respectively. If it is melted and recast into a solid cylinder of length of $2\frac{2}{3}$ cm, find the diameter of the cylinder.
- Q92.** A spherical shell of lead, whose external diameter is 18 cm, is melted and recast into a right circular cylinder, whose height is 8 cm and diameter 12 cm. Determine the internal diameter of the shell.
- Q93.** The inner and outer radii of a hollow cylinder are 15 cm and 20 cm, respectively. The cylinder is melted and recast into a solid cylinder of the same height. Find the radius of the base of new cylinder.
- Q94.** Two cylindrical vessels are filled with oil. Their radii are 15 cm, 12 cm and heights 20 cm, 16 cm respectively. Find the radius of a cylindrical vessel 21 cm in height, which will just contain the oil of the two given vessels.
- Q95.** A cylindrical bucket 29 cm in diameter and 72 cm high is full of water. The water is emptied into a rectangular tank 66 cm long and 28 cm wide. Find the height of the water level in the tank.
- Q96.** A sphere of diameter 5 cm is dropped into a cylindrical vessel partly filled with water. The diameter of the base of the vessel is 10 cm. If the sphere is completely submerged, by how much will the level of water rise?
- Q97.** A spherical ball of iron has been melted and made into smaller balls. If the radius of each smaller ball is one-fourth of the radius of the original one, how many such balls can be made?
- Q98.** In a cylindrical vessel of diameter 24 cm, filled up with sufficient quantity of water, a solid spherical ball of radius 6 cm is completely immersed. Find the increase in height of water level.
- Q99.** The diameter of a copper sphere is 18 cm. The sphere is melted and is drawn into a long wire of uniform circular cross-section. If the length of the wire is 108 m, find its diameter.
- Q100** A hollow sphere of internal and external diameters 4 and 8 cm respectively is melted into a cone of base diameter 8 cm. Find the height of the cone.
- Q101** A solid sphere of radius ' r ' is melted and recast into a hollow cylinder of uniform thickness. If the external radius of the base of the cylinder is 4 cm, its height 24 cm and thickness 2 cm, find the value of ' r '.
- Q102** Lead spheres of diameter 6 cm are dropped into a cylindrical beaker containing some water and are fully submerged. If the diameter of the beaker is 18 cm and water rises by 40 cm., find the number of lead spheres dropped in the water.
- Q103** A hemispherical tank full of water is emptied by a pipe at the rate of $\frac{25}{7}$ litres per second. How much time will it take to half-empty the tank, if the tank is 3 metres in diameter?
- Q104** 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 volume and total surface area of the solid. (Use $\pi = 22/7$)
- Q105** A solid is composed of a cylinder with hemispherical ends. If the whole length of the solid is 108 cm and the diameter of the hemispherical ends is 36 cm, find the cost of polishing the surface of the solid at the rate of 7 paise per sq. cm. (Use $\pi = 22/7$)
- Q106** A golf ball has diameter equal to 4.1 cm. Its surface has 150 dimples each of radius 2 mm. Calculate total surface area which is exposed to the surrounding assuming that the dimples are hemispherical.

- Q107** A toy is in the form of a cone surmounted on a hemisphere. The diameter of the base and the height of the cone are 6 cm and 4 cm, respectively. Determine the surface area of the toy. (Use $\pi = 3.14$)
- Q108** A petrol tank is a cylinder of base diameter 21 cm and length 18 cm fitted with conical ends each of axis length 9 cm. Determine the capacity of the tank.
- Q109** A vessel is a hollow cylinder fitted with a hemispherical bottom of the same base. The depth of the cylinder is $\frac{14}{3}$ m and the diameter of hemisphere is 3.5 m. Calculate the volume and the internal surface area of the solid.
- Q110** A cylindrical road roller made of iron is 1 m long. Its internal diameter is 54 cm and the thickness of the iron sheet used in making the roller is 9 cm. Find the mass of the roller, if 1 cm^3 of iron has 7.8 gm mass. (Use $\pi = 3.14$)
- Q111** A solid iron pole having cylindrical portion 110 cm high and of base diameter 12 cm is surmounted by a cone 9 cm high. Find the mass of the pole, given that the mass of 1 cm^3 of iron is 8 gm.
- Q112** A solid toy is in the form of a hemisphere surmounted by a right circular cone. Height of the cone is 2 cm and the diameter of the base is 4 cm. If a right circular cylinder circumscribes the toy, find how much more space it will cover.
- Q113** A cone, a hemisphere and a cylinder stand on equal bases and have the same height. Show that their volumes are in the ratio 1 : 2 : 3.
- Q114** The height of a solid cylinder is 15 cm and the diameter of its base is 7 cm. Two equal conical holes each of radius 3 cm and height 4 cm are cut off. Find the volume of the remaining solid.
- Q115** The surface area of a sphere is the same as the curved surface area of a cone having the radius of the base as 120 cm and height 160 cm. Find the radius of the sphere.
- Q116** A right circular cylinder and a right circular cone have equal bases and equal heights. If their curved surfaces are in the ratio 8 : 5, determine the ratio of the radius of the base to the height of either of them.
- Q117** The height of a solid cylinder is 15 cm, and the diameter of its base is 7 cm. Two equal conical holes each of radius 3 cm, and height 4 cm are cut off. Find the volume of the remaining solid.
- Q118** A tent is in the form of a right circular cylinder surmounted by a cone. The diameter of the base of the cylinder or the cone is 24 m. The height of the cylinder is 11 m. If the vertex of the cone is 16 m above the ground, find the area of the canvas required for making the tent. (Use $\pi = \frac{22}{7}$)
- Q119** A tent of height 8.25 m is in the form of a right circular cylinder with diameter of base 30 m and height 5.5 m, surmounted by a right circular cone of the same base. Find the cost of the canvas of the tent at the rate of Rs. 45 per m^2 .
- Q120** A toy is in the form of a cone mounted on a hemisphere with the same radius. The diameter of the base of the conical portion is 6 cm and its height is 4 cm. Determine the surface area of the toy. (Use $\pi = 3.14$)
- Q121** A solid is in the form of a cylinder with hemispherical ends. Total height of the solid is 19 cm and the diameter of the cylinder is 7 cm. Find the volume and total surface area of the solid.
- Q122** A golf ball has diameter equal to 4.2 cm. Its surface has 200 dimples each of radius 2 mm. Calculate the total surface area which is exposed to the surroundings assuming that the dimples are hemispherical.
- Q123** A cone, a hemisphere and a cylinder stand on equal bases and have the same height what is the ratio of their volumes?
- Q124** A sphere and a cube have equal surface areas. What is the ratio of the volume of the sphere to that of the cube?
- Q125** A hemisphere and a cone have equal bases. If their heights are also equal, then what is the ratio of their curved surfaces?

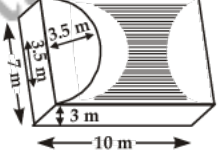
- Q126.** The radii of the circular ends of a frustum of height 6 cm are 14 cm and 6 cm respectively. Find the lateral surface area and total surface area of the frustum.
- Q127.** The perimeters of the ends of a frustum are 48 cm and 36 cm. If the height of the frustum be 11 cm, find its volume.
- Q128.** The slant height of the frustum of a cone is 4 cm, and the perimeter of its circular bases are 18 cm and 6 cm respectively. Find the curved surface area of the frustum.
- Q129.** A friction clutch is in the form of a frustum of a cone, the diameter of the ends being 32 cm and 20 cm and length 9 cm. Find its bearing surface and volume.
- Q130.** A bucket has top and bottom diameters of 40 cm and 20 cm respectively. Find the volume of the bucket if its depth is 12 cm. Also, find the cost of tin sheet used for making the bucket at the rate of Rs. 1.20 per dm^2 . (Use $\pi = 3.14$)
- Q131.** A frustum of a right circular cone has a diameter of base 20 cm, of top 12 cm and height 3 cm. Find the area of its whole surface and volume.
- Q132.** The slant height of the frustum of a cone is 4 cm and the perimeters of its circular ends are 18 cm and 6 cm. Find the curved surface of the frustum.
- Q133.** The radii of the circular bases of a frustum of a right circular cone are 12 cm and 3 cm and the height is 12 cm. Find the total surface area and the volume of the frustum.
- Q134.** The diameter of a metallic sphere is 6 cm. The sphere is melted and drawn into a wire of uniform cross-section. If the length of the wire is 36 cm, find its radius.
- Q135.** The diameters of the internal and external surfaces of a hollow spherical shell are 6 cm and 10 cm respectively. If it is melted and recast into a solid cylinder of diameter 14 cm, find the height of the cylinder.
- Q136.** The surface area of a solid metallic sphere is 616 cm^2 . It is melted and recast into a cone of height 28 cm. Find the diameter of the base of the cone so formed (Use $\pi = 22/7$).
- Q137.** The volume of a hemi-sphere is $2425 \frac{1}{2} \text{ cm}^3$. Find its curved surface area (Use $\pi = 22/7$).
- Q138.** A cylindrical bucket, 32 cm high and with radius of base 18 cm, is filled with sand. This bucket is emptied out 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.
- Q139.** If the total surface area of a solid hemisphere is 462 cm^2 , find its volume (Take $\pi = 22/7$).
- Q140.** 150 spherical marbles, each of diameter 1.4 cm are dropped in a cylindrical vessel of diameter 7 cm containing some water, which are completely immersed in water. Find the rise in the level of water in the vessel.
- Q141.** A solid metallic sphere of radius 5.6 cm is melted and solid cones each of radius 2.8 cm and height 3.2 cm are made. Find the number of such cones formed.
- Q142.** A 5 m wide cloth is used to make a conical tent of base diameter 14 m and height 24 m. Find the cost of cloth used at the rate of Rs. 25 per metre (Use $\pi = 22/7$).
- Q143.** A solid cuboid of iron with dimensions 53 cm 40 cm 15 cm is melted and recast into a cylindrical pipe. The outer and inner diameters of pipe are 9 cm and 7 cm respectively. Find the length of pipe.
- Q144.** A circus tent is cylindrical upto a height of 3 m and conical above it. If the diameter of the base is 105 m and the slant height of the conical part is 53 m, find the total canvas used in making the tent.
- Q145.** A solid wooden toy is in the shape of a right circular cone mounted on a hemisphere. If the radius of the hemisphere is 4.2 cm and the total height of the toy is 10.2 cm, find the volume of the wooden toy.

- Q146** From a solid circular cylinder with height 10 cm and radius of the base 6 cm, a right circular cone of the same height and same base is removed. Find the volume of the remaining solid. Also, find the whole surface area.
- Q147** A vessel in the form of a hollow hemisphere mounted by a hollow cylinder. The diameter of the hemisphere is 14 cm and the total height of the vessel is 13 cm. Find the inner surface area of the vessel.
- Q148** A toy is in the form of a cone of radius 3.5 cm mounted on a hemisphere of same radius. The total height of the toy is 15.5 cm. Find the total surface area of the toy.
- Q149** A solid is in the shape of a cone surmounted on a hemisphere, the radius of each of them is being 3.5 cm and the total height of solid is 9.5 cm. Find the volume of the solid. (Use $\pi = 22/7$).
- Q150** An wooden toy is made by scooping out a hemisphere of same radius from each end of a solid cylinder. If the height of the cylinder is 10 cm and its base is of radius 3.5 cm, find the volume of wood in the toy. (Use $\pi = 22/7$).
- Q151** From a solid cylinder of height 2.8 cm and diameter 4.2 cm, a conical cavity of the same height and same diameter is hollowed out. Find the total surface area of the remaining solid. (Use $\pi = 22/7$).
- Q152** If the radii of the circular ends of a conical bucket which is 45 cm high, are 28 cm and 7 cm, find the capacity of the bucket. (Use $\pi = 22/7$).
- Q153** A bucket is in the form of a frustum of a cone and holds 28.490 litres of water. The radii of the top and bottom are 28 cm and 21 cm respectively. Find the height of the bucket.
- Q154** If the radii of the circular ends of a conical bucket which is 45 cm high be 28 cm and 7 cm, find the capacity of the bucket. (Use $\pi = 22/7$).
- Q155** The radii of the circular ends of a solid frustum of a cone are 33 cm and 27 cm and its slant height is 10 cm. Find its total surface area.
- Q156** A solid is in the shape of a frustum of a cone. The diameters of the two circular ends are 60 cm and 36 cm and the height is 9 cm. Find the area of its whole surface and the volume
- Q157** 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. How many bottles are necessary to empty the bowl?
- Q158** A solid metallic sphere of diameter 28 cm is melted and recast into a number of smaller cones, each of diameter $4\frac{2}{3}$ cm and height 3 cm. Find the number of cones so formed.
- Q159** A metallic sphere of radius 10.5 cm is melted and thus recast into small cones, each of radius 3.5 cm and height 3 cm. Find how many cones are obtained.
- Q160** If the areas of circular bases of a frustum of a cone are 4 cm^2 and 9 cm^2 respectively and the height of the frustum is 12 cm. What is the volume of the frustum?
- Q161** The slant height of the frustum of a cone is 5 cm. If the difference between the radii of its two circular ends is 4 cm, write the height of the frustum.
- Q162** A solid iron rectangular block of dimensions 4.4 cm, 2.6 cm and 1 m is cast into a hollow cylindrical pipe of internal radius 30 cm and thickness 5 cm. Find the length of the pipe.
- Q163** A well with 10 m inside diameter is dug 14 m deep. Earth taken out of it is spread all a round to a width of 5 m to form an embankment. Find the height of embankment.
- Q164** A well, whose diameter is 7 m, has been dug 22.5 m deep and the earth dugout is used to form an embankment around it. If the height of the embankment is 1.5 m, find the width of the embankment.

- Q165** An agriculture field is in the form of a rectangle of length 20 m width 14 m. A 10 m deep well of diameter 7 m is dug in a corner of the field and the earth taken out of the well is spread evenly over the remaining part of the field. Find the rise in its level.
- Q166** Water is being pumped out through a circular pipe whose internal diameter is 7 cm. If the flow of water is 72 cm per second, how many litres of water are being pumped out in one hour?
- Q167** Water is flowing at the rate of 5 km/hr through a pipe of diameter 14 cm into a rectangular tank which is 50 m long and 44 m wide. Determine the time in which the level of the water in the tank will rise by 7 cm.
- Q168** Water flows at the rate of 10 metre per minute through a cylindrical pipe having its diameter as 5 mm. How much time will it take to fill a conical vessel whose diameter of base is 40 cm and depth 24 cm?
- Q169** A lead pencil consists of a cylinder of wood with a solid cylinder of graphite filled into it. The diameter of the pencil is 7 mm, the diameter of the graphite is 1 mm and the length of the pencil is 10 cm. Calculate the weight of the whole pencil, if the specific gravity of the wood is 0.7 gm/cm^3 and that of the graphite is 2.1 gm/cm^3 .
- Q170** A copper wire 4 mm in diameter is evenly wound about a cylinder whose length is 24 cm and diameter 20 cm so as to cover the whole surface. Find the length and weight of the wire assuming the specific gravity to be 8.88 g/cm^3 .
- Q171** A copper wire 3 mm in diameter is wound about a cylinder whose length is 1.2 m and diameter 10 cm, so as to cover the curved surface of the cylinder. Find the length and mass of the wire, assuming the density of the copper wire to be 8.888 gram per cm.
- Q172** The radius of a solid iron sphere is 8 cm. Eight rings of iron plate of external radius $6\frac{2}{3}$ cm and thickness 3 cm are made by melting this sphere. Find the internal diameter of each ring.
- Q173** A conical vessel of radius 6 cm and height 8 cm is completely filled with water. A sphere is lowered into the water and its size is such that when it touches the sides, it is just immersed as shown in figure. What fraction of water over flows?

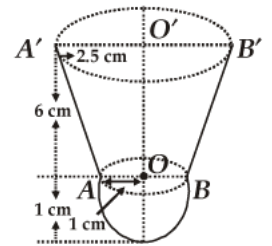


- Q174** An iron spherical ball has been melted and recast into smaller balls of equal size. If the radius of each of the smaller balls is $\frac{1}{4}$ of the radius of the original ball, how many such balls are made? Compare the surface area, of all the smaller balls combined together with that of the original ball.
- Q175** A right angled triangle whose sides are 3 cm, 4 cm and 5 cm is revolved about the sides containing the right angle in two ways. Find the difference in volumes of the two cones so formed. Also, find their curved surfaces.
- Q176** A well with inner radius 4 m is dug 14 m deep. Earth taken out of it has been spread evenly all around a width of 3 m it to form an embankment. Find the height of the embankment.
- Q177** A conical vessel whose internal radius is 10 cm and height 48 cm is full of water. Find the volume of water. If this water is poured into a cylindrical vessel with internal radius 20 cm, find the height to which the water level rises in it.
- Q178** In the middle of a rectangular field measuring 30 m 20 m, a well of 7 m diameter and 10 m depth is dug. The earth so removed is evenly spread over the remaining part of the field. Find the height through which the level of the field is raised.
- Q179** A iron pillar has some part in the form of a right circular cylinder and remaining in the form of a right circular cone. The radius of the base of each of cone and cylinder is 8 cm. The cylindrical part is 240 cm high and the conical part is 36 cm high. Find the weight of the pillar if one cubic cm of iron weighs 7.8 grams.

- Q180** The interior of a building is in the form of a right circular cylinder of diameter 4.2 m and height 4 m surmounted by a cone. The vertical height of cone is 2.1 m. Find the outer surface area and volume of the building. (Use $\pi = 22/7$)
- Q181** The interior of a building is in the form of cylinder of diameter 4.3 m and height 3.8 m, surmounted by a cone whose vertical angle is a right angle. Find the area of the surface and the volume of the building. (Take $\pi = 3.14$)
- Q182** A solid is in the form of a right circular cone mounted on a hemisphere. The radius of the hemisphere is 3.5 and the height of the cone is 4 cm. The solid is placed in a cylindrical tub, full of water, in such a way that the whole solid is submerged in water. If the radius of the cylinder is 5 cm and its height is 10.5, find the volume of water left in the cylindrical tub. (Use $\pi = 22/7$)
- Q183** A cylindrical container of radius 6 cm and height 15 cm is filled with ice-cream. The whole ice-cream has to be distributed to 10 children in equal cones with hemispherical tops. If the height of the conical portion is four times the radius of its base, find the radius of the ice-cream cone.
- Q184** A toy is in the shape of a right circular cylinder with a hemisphere on one end and a cone on the other. The height and radius of the cylindrical part are 13 cm and 5 cm respectively. The radii of the hemispherical and conical parts are the same as that of the cylindrical part. Calculate the surface of the toy if height of the conical part is 12 cm.
- Q185** A godown building is in the form as shown in figure. The vertical cross-section parallel to the width side of the building is a rectangle 7 m \times 3 m, mounted by a semi-circle of radius 3.5 m. The inner measurements of the cuboidal portion of the building are 10 m \times 7 m \times 3 m. Find the volume of the godown and the total interior surface area excluding the floor (base). (Use $\pi = 22/7$)
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- Q186** A right triangle, whose sides are 15 cm and 20 cm, is made to revolve about its hypotenuse. Find the volume and surface area of the double cone so formed. (Use $\pi = 3.14$)
- Q187** A container shaped like a right circular cylinder having diameter 12 cm and height 15 cm is full of ice-cream. The ice-cream is to be filled in to cones of height 12 cm and diameter 6 cm, having a hemispherical shape on the top. Find the number of such cones which can be filled with ice-cream.
- Q188** A tent is in the form of a right circular cylinder surmounted by a cone. The diameter of cylinder is 24 m. The height of the cylindrical portion is 11m while the vertex of the cone is 16 m above the ground. Find the area of canvas required for the tent.
- Q189** A rocket is in the form of a circular cylinder closed at the lower end with a cone of the same radius attached to the top. The cylinder is of radius 2.5 m and height 21 m and the cone has the slant height 8 m. Calculate the total surface area and the volume of the rocket.
- Q190** A tent of height 77 dm is in the form of a right circular cylinder of diameter 36 m and height 44 dm surmounted by a right circular cone. Find the cost of the canvas at Rs. 3.50 per m^2 . (Use $\pi = 22/7$)
- Q191** A solid is in the form of a right circular cylinder, with a hemisphere at one end and a cone at the other end. The radius of the common base is 3.5 cm and the heights of the cylindrical and conical portions are 10 cm and 6 cm, respectively. Find the total surface area of the solid. (Use $\pi = 22/7$)
- Q192** A circus tent has cylindrical shape surmounted by a conical roof. The radius of the cylindrical base is 20 m. The heights of the cylindrical and conical portions are 4.2 m and 2.1 m respectively. Find the volume of the tent.
- Q193** A conical hole is drilled in a circular cylinder of height 12 cm and base radius 5 cm. The height and the base radius of the cone are also the same. Find the whole surface and volume of the remaining cylinder.
- Q194** A tent is in the form of a cylinder of diameter 20 m and height 2.5 m, surmounted by a cone of equal base and height 7.5 m. Find the capacity of the tent and the cost of the canvas at Rs., 100 per square metre.

- Q195** A cylindrical vessel of diameter 14 cm and height 42 cm is fixed symmetrically inside a similar vessel of diameter 16 cm and height 42 cm. The total space between the two vessels is filled with cork dust for heat insulation purposes. How many cubic centimeters of cork dust will be required?
- Q196** The difference between outside and inside surface area of cylindrical metallic pipe 14 cm long is 4 m^2 . If the pipe is made of 99 cm^3 of metal, find the outer and inner radii of the pipe.
- Q197** A right circular cylinder having diameter 12 cm and height 15 cm is full ice-cream. The ice-cream is to be filled in cones of height 12 cm and diameter 6 cm having a hemispherical shape on the top. Find the number of such cones which can be filled with ice-cream.
- Q198** A solid consisting of a right circular cone of height 120 cm and radius 60 cm standing on a hemisphere of radius 60 cm is placed upright in a right circular cylinder full of water such that it touches the bottoms. Find the volume of water left in the cylinder, if the radius of the cylinder is 60 cm and its height is 180 cm.
- Q199** A solid is composed of a cylinder with hemispherical ends. If the length of the whole solid is 108 cm and the diameter of the cylinder is 36 cm. Find the cost of polishing the surface at the rate of 7 paise per cm^2 .
- Q200** A circus 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 5 m wide to make the required tent.
- Q201** Height of a solid cylinder is 10 cm and diameter 8 cm. Two equal conical holes have been made from its both ends. If the diameter of the holes is 6 cm and height 4 cm, find (i) volume of the cylinder, (ii) volume of one conical hole, (iii) volume of the remaining solid.
- Q202** A cylindrical container is filled with ice-cream, whose diameter is 12 cm and height is 15 cm. The whole ice-cream is distributed to 10 children in equal cones having hemispherical tops. If the height of the conical portion is twice the diameter of its base, find the diameter of the ice-cream.
- Q203** A tent is of the shape of a right circular cylinder upto a height of 3 metres and then becomes a right circular cone with a maximum height of 13.5 metres above the ground. Calculate the cost of painting the inner side of the tent at the rate of Rs. 2 per square metre, if the radius of the base is 14 metres.
- Q204** A right angled triangle with sides 3 cm and 4 cm is revolved around its hypotenuse. Find the volume of the double cone thus generated.
- Q205** The height of a right circular cone is trisected by two planes drawn parallel to the base. Show that the volumes of the three portions starting from the top are in the ratio 1 : 7 : 19.
- Q206** The radius of the base of a right circular cone is r . It is cut by a plane parallel to the base at a height h from the base. The distance of the boundary of the upper surface from the centre of the base of the frustum is $\sqrt{h^2 + \frac{r^2}{9}}$. Show that the volume of the frustum is $\frac{13}{27} \pi r^2 h$.
- Q207** A right circular cone is divided by a plane parallel to its base in two equal volumes. In what ratio will the plane divide the axis of the cone?
- Q208** The height of a cone is 30 cm. A small cone is cut off at the top by a plane parallel to the base. If its volume be $\frac{1}{27}$ of the volume of the given cone, at what height above the base is the section made?
- Q209** A tent is made in the form of a conic frustum surmounted by a cone. The diameters of the base and the top of the frustum are 20 m and 6 m respectively and the height is 24 m. If the height of the tent is 28 m, find the quantity of canvas required.

Q210 A shuttle cock used for playing badminton has the shape of a frustum of a cone mounted on a hemisphere as shown in figure. The external diameters of the frustum are 5 cm and 2 cm, the height of the entire shuttle cock is 7 cm. Find its external surface area.



Q211 A reservoir in the form of the frustum of a right circular cone contains 44×10^7 litres of water which fills it completely. The radii of the bottom and top of the reservoir are 50 metres and 100 metres respectively. Find the depth of water and the lateral surface area of the reservoir. (Take $\pi = 22/7$)

Q212 The height of a cone is 20 cm. A small cone is cut off from the top by a plane parallel to the base. If its volume be $1/125$ of the volume of the original cone, determine at what height above the base the section is made.

Q213 The perimeters of the ends of a frustum of a right circular cone are 44 cm and 33 cm. If the height of the frustum be 15 cm, find its volume, the slant surface and the total surface.

Q214 A metallic right circular cone 20 cm high and whose vertical angle is 90° is cut into two parts at the middle point of its axis by a plane parallel to the base. If the frustum so obtained be drawn into a wire of diameter $(1/16)$ cm, find the length of the wire.

Q215 The radii of the ends of a bucket 30 cm high are 21 cm and 7 cm. Find its capacity in litres and the amount of sheet required to make this bucket.

Q216 A frustum of a cone is 9 cm and the diameters of its circular ends are 28 cm and 4 cm. Find the volume and lateral surface area of the frustum. (Take $\pi = 22/7$)

Q217 A bucket is in the form of a frustum of a cone and holds 15.25 litres of water. The diameters of the top and bottom are 25 cm and 20 cm respectively. Find its height and area of tin used in its construction.

Q218 A cylindrical pipe has inner diameter of 7 cm and water flows through it at 192.5 litres per minute. Find the rate of flow in kilometres per hour.

Q219 The difference between the outer and inner curved surface areas of a hollow right circular cylinder 14 cm long is 88 cm^2 . If the volume of metal used in making the cylinder is 176 cm^3 , find the outer and inner diameters of the cylinder (Use $\pi = 22/7$).

Q220 A well of diameter 2 m is dug 14 m deep. The earth taken out of it is spread evenly all around it to form an embankment of height 40 cm. Find the width of the embankment.

Q221 Water in a canal, 30 dm wide and 12 dm deep is flowing with velocity of 10 km/hr. How much area will it irrigate in 30 minutes, if 8 cm of standing water is required for irrigation?

Q222 The rain water from a roof of 22 m \times 20 m drains into a cylindrical vessel having diameter of base 2 m height 3.5 m. If the vessel is just full, find the rain fall in cm.

Q223 Water is flowing at the rate of 7 metres per second through a circular pipe whose internal diameter is 2 cm into a cylindrical tank the radius of whose base is 40 cm. Determine the increase in the water level in $1/2$ hour.

Q224 Water is flowing at the rate of 3 km/hr through a circular pipe of 20 cm internal diameter into a circular cistern of diameter 10 m and depth 2 m. In how much time will the cistern be filled?

Q225 Sushant has a vessel, of the form of an inverted cone, open at the top, of height 11 cm and radius of top as 2.5 cm and is full of water. Metallic spherical balls each of diameter 0.5 cm are put in the vessel due to which $(\frac{2}{5})^{\text{th}}$ of the water in the vessel flows out. Find how many balls were put in the vessel. Sushant made the arrangement so that the water that flows out irrigates the flower beds. What value has been shown by Sushant?

Q226 A cylindrical tank full of water is emptied by a pipe at the rate of 225 litres per minute. How much time will it take to empty half the tank, if the diameter of its base is 3 m and its height is 3.5 m? (Use $\pi = 22/7$).

Q227 Water is flowing at the rate of 2.52 km/h through a cylindrical pipe into a cylindrical tank, the radius of the base is 40 cm. If the increase in the level of water in the tank, in half an hour is 3.15 m, find the internal diameter of the pipe.

Q228 A right circular cylinder having diameter 12 cm and height 15 cm is full of ice-cream. The ice-cream is to be filled in cones of height 12 cm and diameter 6 cm having a hemispherical shape on the top. Find the number of such cones which can be filled with ice-cream.

Q229 A solid is composed of a cylinder with hemispherical ends. If the whole length of the solid is 104 cm and the radius of each of the hemispherical ends is 7 cm, find the cost of polishing its surface at the rate of Rs. 10 per dm^2 .

Q230 A cylindrical tub of radius 5 cm and length 9.8 cm is full of water. A solid in the form of a right circular cone mounted on a hemisphere is immersed in the tub. If the radius of the hemisphere is immersed in the tub. If the radius of the hemisphere is 3.5 cm and height of the cone outside the hemisphere is 5 cm, find the volume of the water left in the tub. (Take $\pi = 3.14$)

Q231 A toy is the shape of a right circular cylinder with a hemisphere on one end and a cone on the other. The radius and height of the cylindrical part are 5 cm and 13 cm respectively. The radii of the hemispherical and conical parts are the same as that of the cylindrical part. Find the surface area of the toy if the total height of the toy is 30 cm.

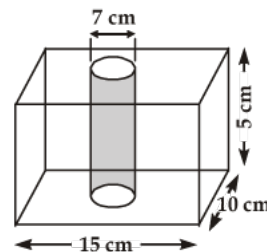
Q232 A tent is of the shape of a right circular cylinder upto a height of 3 metres and then becomes a right circular cone with a maximum height of 13.5 metres above the ground. Calculate the cost of painting the inner side of the tent at the rate of Rs. 2 per square metre, if the radius of the base is 14 metres.

Q233 A cylindrical vessel with internal diameter 10 cm and height 10.5 cm is full of water. A solid cone of base diameter 7 cm and height 6 cm is completely immersed in water. Find the value of water (i) displaced out of the cylinder. (ii) left in the cylinder. (Take $\pi = 22/7$).

Q234 A hemispherical depression is cut out from one face of a cubical wooden block of edge 21 cm, such that the diameter of the hemisphere is equal to the edge of the cube. Determine the volume and total surface area of the remaining block. (Use $\pi = 22/7$).

Q235 A hollow cone is cut by a plane parallel to the base and the upper portion is removed. If the curved surface of the remainder is $\frac{8}{9}$ of the curved surface of the whole cone, find the ratio of the line-segment into which the cone's altitude is divided by the plane.

Q236 In figure, from a cuboidal solid metallic block, of dimensions 15 cm \times 10 cm \times 5 cm, a cylindrical hole of diameter 7 cm is drilled out. Find the surface area of the remaining block. (Take $\pi = 22/7$).



Q237 A solid wooden toy is in the form of a hemisphere surmounted by a cone of same radius. The radius of hemisphere is 3.5 cm and the total wood used in the making of toy is $166\frac{5}{6} \text{ cm}^3$. Find the height of the toy. Also, find the cost of painting the hemispherical part of the toy at the rate of Rs. 10 per cm^2 . (Take $\pi = 22/7$).

Q238 A toy is in the form of a hemisphere surmounted by a right circular cone of the same base radius as that of the hemisphere. If the radius of the base of the cone is 21 cm and its volume is $\frac{2}{3}$ of the volume of the hemisphere, calculate the height of the cone and the surface area of the toy. (Use $\pi = 22/7$).

- Q239** A bucket of height 8 cm and made up of copper sheet is in the form of frustum of a right circular cone with radii of its lower and upper ends as 3 cm and 9 cm respectively. Calculate
- the height of the cone of which the bucket is a part.
 - the volume of water which can be filled in the bucket.
 - the area of copper sheet required to make the bucket.
- Q240** A solid metallic right circular cone 20 cm high with vertical angle 60° is cut into two parts at the middle point of its height by a plane parallel to the base. If the frustum, so obtained, be drawn into a wire of diameter $\frac{1}{16}$ cm, find the length of the wire.
- Q241** A container, open from the top, made up of a metal sheet is in the form of a frustum of a cone of height 16 cm with radii of its lower and upper ends as 8 cm and 20 cm respectively. Find the cost of milk which can completely fill the container at the rate of Rs. 15 per litre and the cost of metal sheet used, if the cost is Rs. 5 per 100 cm^2 . (Take $\pi = 3.14$).
- Q242** A bucket is in the form of a frustum of a cone with a capacity of 12308.8 cm^3 of water. The radii of the top and bottom circular ends are 20 cm and 12 cm respectively. Find the height of the bucket and the area of the metal sheet used in its making. (Use $\pi = 3.14$)
- Q243** If a cone of radius 10 cm is divided into two parts by drawing a plane through the mid-point of its axis, parallel to its base. Compare the volumes of the two parts.
- Q244** A toy is in the form of a cone mounted on a hemisphere of radius 3.5 cm. The total height of the toy is 15.5 cm, find the total surface area and volume of the toy.
- Q245** In the figure, from the top of a solid cone of height 12 cm and base radius 6 cm, a cone of height 4 cm is removed by a plane parallel to the base. Find the total surface area of the remaining solid. (Use $\pi = \frac{22}{7}$ and $\sqrt{5} = 2.235$)
- Q246** A bucket open at the top, and made up of a metal sheet is in the form of a frustum of a cone. The depth of the bucket is 24 cm and the diameters of its upper and lower circular ends are 30 cm and 10 cm respectively. Find the cost of metal sheet used in it at the rate of Rs. 10 per 100 cm^2 . (Use $\pi = 3.14$)
- Q247** A solid cone of base radius 10 cm is cut into two parts through the mid-point of its height, by a plane parallel to its base. Find the ratio in the volumes of two parts of the cone.
- Q248** A milk container is made of metal sheet in the shape of frustum of a cone whose volume is $10459 \frac{3}{7} \text{ cm}^3$. The radii of its lower and upper circular ends are 8 cm and 20 cm respectively. Find the cost of metal sheet used in making the container at the rate of Rs. 1.40 per cm^2 . (Use $\pi = \frac{22}{7}$)
- Q249** A bucket made up of a metal sheet is in the form of a frustum of a cone of height 16 cm with diameters of its lower and upper ends as 16 cm and 40 cm respectively. Find the volume of the bucket. Also, find the cost of the bucket if the cost of metal sheet used is Rs. 20 per 100 cm^2 . (Use $\pi = 3.14$)
- Q250** A container open at the top, is in the form of a frustum of a cone of height 24 cm with radii of its lower and upper circular ends as 8 cm and 20 cm respectively. Find the cost of milk which can completely fill the container at the rate of Rs. 21 per litre. (Use $\pi = \frac{22}{7}$)
- Q251** A solid cylinder of diameter 12 cm and height 15 cm is melted and recast into toys with the shape of a right circular cone mounted on a hemisphere of radius 3 cm. If the height of the toy is 12 cm, find the number of toys so formed.
- Q252** A bucket made of aluminium sheet is of height 20 cm and its upper and lower ends are of radius 25 cm and 10 cm respectively. Find the cost of making the bucket if the aluminium sheet costs Rs. 70 per 100 cm^2 . (Use $\pi = 3.14$)

- S1.** (b) 15 cm.
- S2.** (a) $2r$.
- S3.** (b) 126.
- S4.** (c) 36 m.
- S5.** 7 cm.
- S6.** 512 balls.
- S7.** 350 cm^2 .
- S8.** 216 cm^2 .
- S9.** 1000 cm^2 .
- S10.** (c) 5.
- S11.** (a) 4.5 cm.
- S12.** (d) 1 : 8.
- S13.** (b) $\frac{2h}{3}$.
- S14.** (a) 176 m^3 .
- S15.** (c) 36 cm.
- S16.** (d) $136\pi \text{ cm}^2$.
- S17.** (b) 7 : 3.
- S18.** (d) 8 cm.
- S19.** (d) 16 : 9.
- S20.** (c) 6 cm.
- S21.** (d) 4 cm.
- S22.** (b) 14 cm.
- S23.** (c) $\frac{h}{2}$.
- S24.** (b) $\frac{\pi r^3}{3}$.

- S25.** (c) $2r$.
- S26.** (a) 6 cm.
- S27.** (b) 8 cm.
- S28.** (d) 4 : 1.
- S29.** 36 metres.
- S30.** Surface area of the cube = 38400 cm^2 .
- S31.** Number of coins = 450.
- S32.** Water will rise in the cylinder = 1.6 cm.
- S33.** The volume of the sphere = 179.66 cm^3 .
- S34.** The ratio of the volume of a cube = $6 : \pi$.
- S35.** The volume of the cone = $\frac{1}{3} \pi r^3$ cubic units.
- S36.** 8400 bullets.
- S37.** The diameter of the third ball is 5 cm.
- S38.** 2408 cm^2 .
- S39.** 52.8 m^3 .
- S40.** The volume of the largest right circular cone is 190.93 m^3 .
- S41.** The height of the cone is 14 cm.
- S42.** The radius of the base of the cone is 6 cm
- S43.** 4.08 cm.
- S44.** 6 cm
- S45.** 3.74 cm.
- S46.** Volume of cone = 190.93 cm^3 .
- S47.** Volume of the boiler = $\frac{220}{21} \text{ m}^3$.
- S48.** 1437.
- S49.** 9 : 8.
- S50.** 9 : 32.
- S51.** 1 : 2.
- S52.** 1 : 9.

- S53.** 3 : 1 : 2.
- S54.** Surface area of the bucket = $545 \pi \text{ cm}^2$.
- S55.** 163.33 cm^3 .
- S56.** 4410 cm^3 .
- S57.** 3 : 1.
- S58.** The radius of the sphere is 2.1 cm.
- S59.** The length of the wire increase by 10.8%.
- S60.** 1000 spherical balls are obtained by melting the given solid sphere.
- S61.** The number of spherical bullets = 2541.
- S62.** The number of spherical lead shots is 1500.
- S63.** Water level rises by 1 cm.
- S64.** 72 bottles are required to empty the bowl.
- S65.** The height of water rises in the cylindrical vessel is 2 cm.
- S66.** The length of the wire is 112 cm.
- S67.** 26.73 minutes.
- S68.** Required number of words = 48000.
- S69.** 509.14 dm^3 .
- S70.** The diameter of the base of the cylinder = 7 cm.
- S71.** Proved.
- S72.** Proved.
- S73.** 16.5 minutes.
- S74.** The diameter of the cylindrical vessel is 43 cm.
- S75.** Height of the platform is 80 cm.
- S76.** Radius = 36 cm, and slant height of the heap = 43.27 cm
- S77.** 191 m.
- S78.** $\frac{h}{3 \text{ m}^2}$.
- S79.** 10.5 m.
- S80.** 54 bottles.
- S81.** The radius of the ball is 9 cm.

S82. 0.5 cm.

S83. 16.

S84. 14 cm, 146 cm.

S85. The value of h is 6.75 cm.

S86. The diameter of the third ball is 2.5 cm.

S87. Proved.

S88. The length of the wire is 12150 cm.

S89. Cost of the canvas is Rs. 5365.80.

S90. 2.94 cm.

S91. Diameter of the cylinder is 14 cm.

S92. $6(19)^{1/3}$.

S93. 13.2 cm

S94. 18 cm.

S95. 24 cm.

S96. $5/6$ cm.

S97. 64.

S98. 2 cm.

S99. 0.6 cm.

S100. 14 cm.

S101. 6 cm

S102. 90.

S103. 16.5 minutes.

S104. 418 cm^2 .

S105. Cost of polishing = Rs. 855.36.

S106. 71.68 cm^2 .

S107. Surface area of the toy id 103.62 cm^2 .

S108. Capacity of the tank = 8316 cm^3 .

S109. 56.15 m^3 , $70 \frac{7}{12} \text{ m}^2$.

S110.1388.7 kg.

S111.Mass of the pole = 102.188 kg.

S112. $8\pi\text{ cm}^3$.

S113.Proved.

S114. 502.1 cm^3 .

S115.77.46 cm.

S116.3 : 4.

S117. 502.1 cm^3 .

S118. 1320 m^2 .

S119.Rs. 5568.50

S120. 103.62 cm^2 .

S121. 641.67 cm^3 , 418 cm^2 .

S122. 80.58 cm^2 .

S123.1 : 2 : 3.

S124. $\sqrt{\frac{6}{\pi}}$.

S125. $\sqrt{2} : 1$.

S126.Total surface area = 1357.71 cm^2 .

S127.Volume of the frustum = 1554 cm^3 .

S128.The curved surface area = 48 cm^2 .

S129. 4324.57 cm^3 .

S130. 8800 cm^3 , Rs. 21.40.

S131. 678.85 cm^2 , 616 cm^3 .

S132. 48 cm^2 .

S133. $378\pi\text{ cm}^2$, $756\pi\text{ cm}^3$.

S134.1 mm.

S135.The height of the cylinder is $\frac{8}{3}\text{ cm}$.

S136.The diameter of the base of the cone is 14 cm.

S137.Curved surface area is 693 cm^2 .

S138. 36 cm, $12\sqrt{3}$ cm.

S139. 7 cm.

S140. 5.6 cm.

S141. 28.

S142. Rs. 2750.

S143. The length of pipe is 84 cm.

S144. Total canvas used = 9735 m^2 .

S145. 266.11 cm^3 .

S146. Whole surface area = $(156 + 12\sqrt{34})\pi \text{ cm}^2$.

S147. Inner surface area of the vessel = 572 cm^2 .

S148. Total surface area of the toy = 214.4 cm^2 .

S149. 166.83 cm^3 .

S150. 205.33 cm^3 .

S151. 73.92 cm^2 .

S152. Capacity of the bucket = 18510 cm^3 .

S153. The height of the bucket = 15 cm.

S154. Capacity of the bucket = 48510 cm^3 .

S155. 7599.42 cm^2 .

S156. $1944\pi \text{ cm}^2$, $5292\pi \text{ cm}^3$.

S157. 60.

S158. 126.

S159. 126.

S160. 44 cm^2 .

S161. 3 cm.

S162. The length of the pipe is 112 m.

S163. Height of embankment = 4.66 m.

S164. The width of the embankment is 10.5 m.

S165. Rise in the level of the field = 1.594 m.

S166. 9979.2 litres of water flows out per hour.

S167.The level of the water in the tank will rise by 7 cm in 2 hours.

S168.51 minutes 12 seconds.

S169.Total weight = 2.805 gm.

S170.Weight of the wire = $426.24 \pi^2$ gm.

S171.The length = 125.6 m and mass of the wire = 111.533 kg.

S172.The internal diameter of each ring is 4 cm.

S173.Fraction of the water that flows out = 3 : 8.

S174.64 balls, 4 : 1.

S175. $4\pi \text{ cm}^3$, $20\pi \text{ cm}^2$, $15\pi \text{ cm}^2$.

S176.Height of the embankment is 400 m.

S177. 5024 cm^3 , 4 cm.

S178.68.6 cm.

S179.Weight of the pillar = 395.3664 kg.

S180. 65.142 m^3 .

S181. 65.55 m^3 .

S182.Volume of water left in the cylindrical tub = 683.83 cm^3 .

S183.Radius of the ice-cream cone is 3 cm.

S184. 770 cm^2 .

S185. 250.5 m^2 .

S186. 3768 cm^3 , 1318.8 cm^2 .

S187.Number of cones = 10.

S188.Area of canvas = 1320 m^2 .

S189.Total surface area = 412.5 m^2 , Volume of the rocket = 461.77 cm^3 .

S190.Total cost of the canvas is Rs. 5365.80.

S191.Total surface area of the solid is 372.56 cm^2 .

S192.Volume of the tent is 6160 m^3 .

S193.Volume = $200 \pi \text{ cm}^3$, Surface area = $210 \pi \text{ cm}^2$.

S194. $500 \pi \text{ cm}^3$.

S195. 1980 cm^3 .

S196. $\frac{5}{2}$ cm and 2 cm.

S197. 10 cones.

S198. 1.131 m^3 .

S199. Rs. 855.02

S200. 1947 m.

S201. $160\pi \text{ cm}^3$, $12\pi \text{ cm}^3$, $136\pi \text{ cm}^3$.

S202. 6 cm.

S203. Rs. 2068.

S204. $30\frac{6}{35} \text{ cm}^3$.

S205. Proved.

S206. Proved.

S207. Required ratio = $\frac{1}{2^{1/3} - 1}$.

S208. 20 cm.

S209. $340\pi \text{ m}^2$.

S210. External surface area = 74.26 cm^2 .

S211. 24 m, 26145.9 m^2 .

S212. 16 cm.

S213. 1900 cm^3 , 619.65 cm^2 , 860.275 cm^2 .

S214. 23893.33 m.

S215. 20.02 litres, 3069 cm^2 .

S216. $684\pi \text{ cm}^3$, $240\pi \text{ cm}^2$.

S217. 38.18 cm, 3017 cm^2 .

S218. The rate of flow of water is 3 km per hour.

S219. 5 cm, 3 cm.

S220. The width of the embankment is 5 m.

S221. The canal irrigates 225000 m^2 area in $\frac{1}{2}$ hour.

S222. Rain water fall = 2.5 cm.

S223. The rise in the level of water in the tank in $\frac{1}{2}$ hour = 787.5 cm

S224.The cistern will be filled in 1 hour 40 minutes.

S225.440.

S226.55 minutes.

S227.Internal diameter of the pipe is 4 cm.

S228.Number of ice-cream cones = 10.

S229.Cost of polishing = Rs. 457.60.

S230.616 cm³.

S231.770 cm².

S232.Cost of painting = Rs. 2068.

S233.(i) 77 cm³ (ii) 748 cm³

S234.2992.50 cm², 9030 cm³.

S235.Required ratio = $\frac{1}{2}$.

S236.583 cm².

S237.9.5 cm, Rs. 770.

S238.28 cm, 5082 cm².

S239.(i) 12 cm (ii) 312π cm³. (iii) 129π cm².

S240.Length of the wire = 7964.4 m.

S241.Rs. 97.96 (Approx.)

S242.Height = 15 cm, Area 2160.32 cm².

S243.1 : 7.

S244.47

S245.350.59 cm².

S246.171.13.

S247.1 : 7.

S248.Rs. 4224.

S249.Metal sheet used = 10449.92 cm², Cost of the bucket = Rs. 2089.98.

S250.329.47.

S251.12 toys.

S252.Cost of making the bucket = Rs. 2143.05.