MATHS

NCERT - NCERT Maths(Tamil)

MENSURATION

Example

1. The radius of a conical tent is 7 m and the height is 24 m . Calculate the length of the

canvas used to make the tent if the width of the rectangular canvas is 4m ?

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2. A oil drum is in the shape of a cylinder having the following dimensions : diameter is 2 m and heights is 7 m . The painter charges Rs. 3 per m^2 to paint the drum. Find the total charges to be paid to the painter for 10 drums ?

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3. A sphere , a cylinder and a cone are of the same radius and same height . Find the ratio of their curved surface areas.

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4. A company wants to manufacture 1000 hemispherical basins from a steel sheet . If the radius of each basin is 21 cm, find the area of steel required to manufacture the above hemispherical basins ?

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5. A right circular cylinder has base radius 14 cm and height 21 cm.

Find its area of base (or area of each end)

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6. A right circular cylinder has base radius 14 cm and height 21 cm.

Find its curved surface area.

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7. A right circular cylinder has base radius 14 cm and height 21 cm.

Find its total surface area.

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8. A right circular cylinder has base radius 14 cm and height 21 cm.

Find its volume.

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9. Find the volume and surface area of a sphere of radius 2.1 cm $\left(\pi = \frac{22}{7}\right)$

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10. Find the volume and the total surface area of a hemisphere of radius 3.5 cm . $\left(\pi = \frac{22}{7}\right)$

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11. Find the volume and surface area of a sphere of radius 2.1 cm $\left(\pi = \frac{22}{7}\right)$

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12. A wooden toyrocket is in the shape of a cone mounted on a cylinder as shown in the adhacent figure. The height of the entire rocket is 26 cm, while the height of the concial part is 6 cm. The base of the conical position has a diameter of 5 cm, while the base diameter of the cylindrical portion is 3 cm. If

the conical portion is to be painted orange and the cylindrical portion is to be painted yellow , find the area of the pocket painted with each of these color (take $\pi = 3.14$)

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13. A solid toy is in the form of a right circular cylinder with hemispherical shape at one end and a cone at the other end. Their common diameter is 4.2 cm and the height of the cylindrical and conical portions are 12 cm and

7 cm respectively. Find the volume of the solid toy. (Use $\pi = \frac{22}{7}$)

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14. 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 by filling in equal cones and forming hemispherical tops. If the height of the conical portion is twice the diameter of its base. Find the diameter of the ice cream cone.

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15. A cylinderical mug of radius 5 cm and height 9.8 cm is full of water. A solid in the form of right circular cone mounted on a hemisphere is immersed into the mug. The radius of the hemisphere is 3.5 cm ad height of conical part 5 cm . Find the volume of water left in the tub (Take $\pi = \frac{22}{7}$)

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16. A cylindrical pencil is sharpened to produce a perfect cone at one end with no over all its length. The diameter of the pencil is 1 cm and the length of the conical portion is 2 cm. Calculate the volume of the peels. Give your answer correct to two places if it is in decimal [use $\pi = \frac{355}{113}$]

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17. A cone of height 24 cm and radius of base 6 cm is made up of modelling clay. A child moulds it in the form of a sphere. Find the radius of the shape.

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18. The internal and external diameter of a hollow hemispherical shell are 6 cm and 10 cm respectively. If it is melted and recast into a

solid cylinder of diameter 14 cm, then find the height of the cylinder.

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19. A hemispherical bowl of internal radius 15 cm contains a liquid. The liquid is to be filled into cylindrical bottles of diameter 5 cm and height 6 cm How many bottles are necessary to empty the bowl ?

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20. The diameter of a metallic sphere is 6 cm. It is melted and drawn into a long wire having a circular cross section of diameter as 0.2 cm . Find the length of the wire.

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21. How many spherical balls can be made out of a solid cube of lead whose edge measures 44 cm and each ball being 4 cm in diameter.

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22. A women selfhelp group (DWACRA) is supplied a rectangular solid (cuboid shape) of wax block with dimensions 66 cm , 42 cm, 21 cm , to prepare cylindrical candles each 4.2 cm in diameter and 2.8 cm of height . Find the number of candles prepared using this so solid .

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23. A cylindrical drum has a height of 20 cm and base radius of 14 cm. Find its curved surface area and the total surface area

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24. The curved surface area of a right circular cylinder of height 14 cm is $88cm^2$. Find the diameter of the cylinder

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25. A garden roller whose length is 3 m long and whose diameter is 2.8m is rolled to level a garden. How much area will it cover in 8 revolutions?

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26. The radius of a conical tent is 7 m and the height is 24 m. Calculate the length of the canvas used to make the tent if the width of the rectangular canvas is 4 m?

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27. If the total surface area of a cone of radius 7cm is $704cm^2$, then find its slant height.

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28. Find the diameter of a sphere whose surface area is $154m^2$.

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29. The radius of a spherical balloon increases from 12 cm to 16 cm as air being pumped into it. Find the ratio of the surface area of the balloons in the two cases.

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30. The slant height of a frustum of a cone is 5 cm and the radii of its ends are 4 cm and 1 cm. Find its curved surface area.

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31. Find the volume of a cylinder whose height is 2 m and whose base area is $250m^2$.

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32. The volume of a cylindrical water tank is 1.078×10^6 litres. If the diameter of the tank is 7m, find its height.

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33. Find the volume of the iron used to make a hollow cylinder of height 9 cm and whose internal and external radii are 21 cm and 28 cm respectively

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34. The volume of a solid right circular cone is 11088 cm^3. If its height is 24 cm then find the radius of the cone.

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35. The ratio of the volumes of two cones is $2:3$. Find the ratio of their radii if the height of second cone is double the height of the first.

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36. The volume of a solid hemisphere is $29106cm^3$. Another hemisphere whose volume is two-third of the above is carved out. Find the radius of the new hemisphere.

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37. Calculate the weight of a hollow brass sphere if the inner diameter is 14 cm and thickness is 1mm, and whose density is $17.3g/cm^3$.

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38. If the radii of the circular ends of a frustum which is 45 cm high are 28 cm and 7 cm, find the volume of the frustum.

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39. Arul has to make arrangements for the accommodation of 150 persons for his family function. For this purpose, he plans to build a tent which is in the shape of cylinder surmounted by a cone. Each person occupies 4 sq. m of the space on ground and 40 cu. meter of air to breathe. What should be the height of the conical part of the tent if the height of cylindrical part is 8 m?

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40. A funnel consists of a frustum of a cone attached to a cylindrical portion 12 cm long attached at the bottom. If the total height be 20 cm, diameter of the cylindrical portion be 12 cm and the diameter of the top of the funnel be 24 cm. Find the outer surface area of the funnel.

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41. A metallic sphere of radius 16 cm is melted and recast into small spheres each of radius 2 cm. How many small spheres can be obtained?

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42. A cone of height 24 cm is made up of modeling clay. A child reshapes it in the form of a cylinder of same radius as cone. Find the height of the cylinder.

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43. A right circular cylindrical container of base radius 6 cm and height 15 cm is full of ice cream. The ice cream is to be filled in cones of height 9 cm and base radius 3 cm, having a hemispherical cap. Find the number of cones needed to empty the container.

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Exercise 10 1

1. A joker's cap is in the form of right circular cone whose base radius is 7 cm and heights is 24 cm . Find the area of the sheet required to make 10 such caps.

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2. A sports company was ordered to prepare 100 paper cylinders for packing shuttle cocks. The requried dimensions of the cylinder are 35 cm length/height and its radius is 7 cm . Find

the required area of thick paper sheet needed to make 100 cylinders ?

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3. Find the volume of right circular cone with radius 6 cm and height 7 cm.

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4. The lateral surface area of a cylinder is equal to the curved surface area of cone . If their

bases are the same, find the ratio of the height of the cylinder to the slant height of the cone.

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5. A self help group wants to manufacture joker's caps of 3 cm. radius and 4 cm height. If the available paper sheet is 1000 cm^2 , then how many caps can be manufactured from that paper sheet ?

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6. A cylinder and cone have bases of equal radii and are of equal heights. Show that their volumes are in the ratio of 3:1

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7. The shape of solid iron rod is cylinderical Its height is 11 cm and base diameter is 7 cm Then find the total volume of 50 such rods.

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8. A heap of rice is in the form of a cone of diameter 12 cm and height 8 cm . Find its volume ? How much canvas cloth is required to cover the heap ? (Use $\pi = 3.14$)

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9. The curved surface area of a cone is 4070 cm^2 and its diameter is 70 cm . What is its slant height ?

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Exercise 10 2

1. A toy is in form of a cone mounted on a hemisphere on the same diameter . 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 $\pi = 3.14$]

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2. A solid is in the form of a right circular with a hemisphere at one end and a cone at the other end. The radius of the common base is 8 cm and the heights of the cylindrical and conical portions are 10 cm and 6 cm respectivly. Find the total surface area of the solid [use $\pi = 3.14$]

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3. A medicine capsule is in the shape of a cylinder with two hemisphere struck to each of its ends. The length of the entire capsule is 14 mm and the diameter of the capsule is 5 mm. Find its surface area

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4. Two cubes each of volume $64cm^3$ are joined end to end together. Find the surface area of the resulting cuboid.

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5. A storage tank consists of a circular cylinder with a hemisphere stuck on either end. If the external diameter of the cylinder be 1.4 cm and its length be 8 m. Find the cost of painting it on the outside at rite of Rs. 20per m^2.

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6. A sphere , a cylinder and a cone have the same radius and same height. Find the ratio of

their volumes.

[Hint : Diameter of the sphere is equal to the heights of the cylinder and the cone]

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7. A hemisphere is cut from one face of a cubical wooden block such that the diameter of the hemisphere is equal to the side of the cube. Determine the total surface area of the remaining solid.

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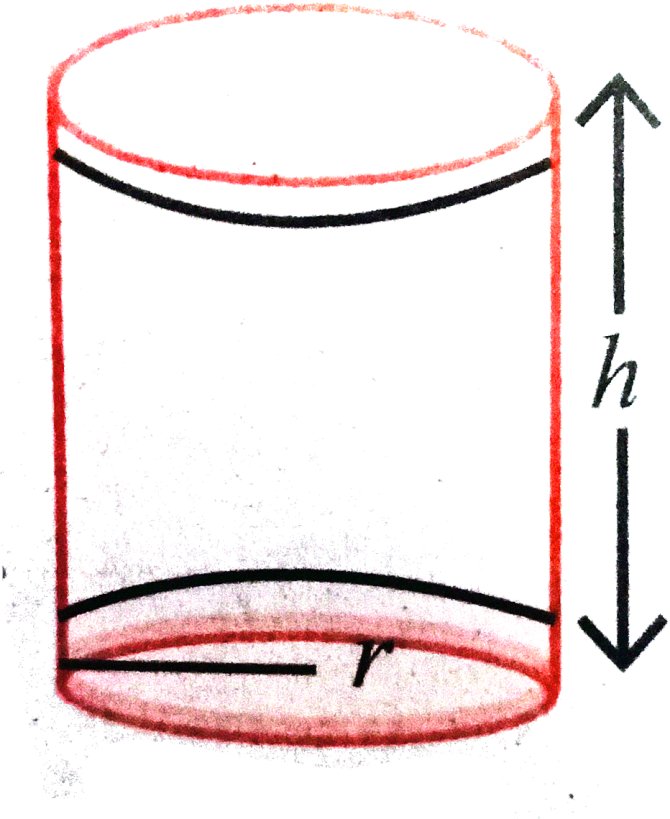
8. A wooden article was made by scooping out a hemisphere from each end of a cylinder as shown in figure. If the height of the cylinder is 10 cm and its base is of radius 3.5 cm find the

total surface area of the article.



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Exercise 10 3

1. A iron pillar consists of a cylindrical portion of 2.8 m height and 20 cm in diameter and a cone of 42 cm height sumounting it. Find the weight of the pillar if 1 cm^3 of iron weights 7.5 g.

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2. A toy is made in the form of hemisphere sumounted by a right cone whose circular base is joined with the plane surface of the

hemisphere . The radius of the base of the cone is 7 cm and its volume is $\frac{3}{2}$ of the hemisphere . Calculate the height of the cone and the surface area of the toy correct to 2 places of decimal (Take $\pi = 3\frac{1}{7}$)

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3. Find the volume of the largest right circular cone that can be cut out of a cube whose edge is 7 cm.

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4. A cylinderical mug of radius 5 cm and height 9.8 cm is full of water. A solid in the form of right circular cone mounted on a hemisphere is immersed into the mug. The radius of the hemisphere is 3.5 cm ad height of conical part 5 cm . Find the volume of water left in the tub (Take $\pi = \frac{22}{7}$)

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5. From a solid cylinder whose height is 2.4 cm and the diameter 1.4 cm, a cone of the same height and same diameter is carved out. Find the volume of the remaining solid to the nearest cm^3.

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6. Spherical shaped marbles of diameter 1.4cm each, are dropped into a cylindrical beaker of diameter 7cm containing some water. Find the

number of marbles that should be dropped into the beaker so that the water level rises by 5.6cm.

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7. Find the dimensions of the rectangle with maximum area that can be inscribed in a circle of radius 10 cm.

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Exercise 10 4

1. A metallic sphere of radius 4.2 cm is melted and recast into the shape of a cylinder of radius 6cm. Find the height of the cylinder.

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2. Three metallic spheres of radii 6 cm, 8 cm and 10 cm respectively are melted together to form a single solid sphere. Find the radius ofthe resulting sphere.

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3. A 20m deep well of diameter 7 m is dug and the earth got by digging is evenly spread out to form a rectangular platform of base 22 m $\times$ 14 m. Find the height of the platform.

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4. A well of diameter 14 m is dug 15 m deep. The earth taken out of it has been spread

evenly to form circular embankment all around the wall of width 7 m. Find the height of the embankment.

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5. A container shaped a right circular cylinder having diameter 12 cm and height 15 cm is full of ice cream. The ice cream is to be filled into cones of height 12 cm and diameter 6 cm, making a hemispherical shape on the top. Find

the number of such cones which can be filled with ice cream.

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6. How many silver coins, 1.75 cm in diameter and thickness 2 mm, need to be melted to form a cuboid of dimensions $5.5cm \times 10cm \times 3.5cm$?

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7. A vessel is in the form of an inverted cone. Its height is 8 cm. and the radius of its top is 5 cm. It is filled with water up to the rim. When lead shots, each of which is a sphere of radius 0.5cm are dropped into the vessel, $\frac{1}{4}$ of the water flows out. Find the number of lead shots dropped into the vessel.

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8. 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 3cm. Find the number of cones so formed.

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Optional Exercise

1. 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 surroundings. (Assume that the dimples are all hemispherical) $\left[\pi = \frac{22}{7}\right]$

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2. A cylinder of radius 12 cm contains water to a depth of 20 cm. When a spherical iron ball is dropped in to the cylinder, the level of water is raised by 6.75 cm. Find the radius of the ball. $\left[\pi = \frac{22}{7}\right]$

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3. A solid toy is in the form of a right circular cylinder with a hemispherical shape at one end and a cone at the other end. Their common diameter is 4.2 cm. and heights of the cylindrical and concial portion are 12 cm. and 7 cm. respectively. Find the volume of the solid toy. $\left[\pi = \frac{22}{7}\right]$

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4. Three metal cubes with edges 15 cm, 12 cm and 9 cm, respectively are melted together and formed into a single cube. Find the diagonal of this cube.

5. 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?

A. 72

B. 36

C. 54

D. 43

Answer: A

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Progress Check

1. A section of the sphere by a plane through any of its great circle is ____.

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Exercise 7 1

1. The radius and height of a cylinder are in the ratio $5:7$ and its curved surface area is 5500 sq.cm. Find its radius and height.

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2. A solid iron cylinder has total surface area of 1848 sq.m. Its curved surface area is five – sixth of its total surface area. Find the radius and height of the iron cylinder.

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3. The external radius and the length of a hollow wooden log are 16 cm and 13 cm

respectively. If its thickness is 4 cm then find its T.S.A.

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4. A right angled triangle PQR where $\angle Q = 90^\circ$ is rotated about QR and PQ. If QR= 16cm and PR=20cm, compare the curved surface areas of the right circular cones so formed by the triangle

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5. 4 persons live in a conical tent whose slant height is 19 cm. If each person require $22cm^2$ of the floor area, then find the height of the tent.

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6. A girl wishes to prepare birthday caps in the form of right circular cones for her birthday party, using a sheet of paper whose area is $5720cm^2$, how many caps can be made with radius 5 cm and height 12 cm.

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7. The ratio of the radii of two right circular cones of same height is 1 : 3. Find the ratio of their curved surface area when the height of each cone is 3 times the radius of the smaller cone.

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8. The radius of a sphere increases by 25% . Find the percentage increase in its surface area.

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9. The internal and external diameters of a hollow hemispherical vessel are 20 cm and 28 cm respectively. Find the cost to paint the vessel all over at Rs. 0.14 per cm^2.

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Exercise 7 2

1. A 14 m deep well with inner diameter 10 m is dug and the earth taken out is evenly spread all around the well to form an embankment of width 5 m. Find the height of the embankment.

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2. A cylindrical glass with diameter 20 cm has water to a height of 9 cm. A small cylindrical metal of radius 5 cm and height 4 cm is immersed it completely. Calculate the raise of the water in the glass ?

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3. If the circumference of a conical wooden piece is 484 cm then find its volume when its height is 105 cm

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4. A conical container is fully filled with petrol. The radius is 10 m and the height is 15 m. If the container can release the petrol through its bottom at the rate of 25 cu. Meter per minute, in how many minutes the container will be emptied. Round off your answer to the nearest minute.

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5. A right angled triangle whose sides are 6 cm, 8 cm and 10 cm is revolved about the sides containing the right angle in two ways. Find the difference in volumes of the two soilds so formed.

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6. The volumes of two cones of same base radius are $3600cm^3$ and $5040cm^3$. Find the ratio of heights.

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7. If the ratio of radii of two speres is $4:7$, find the ratio of their volumes.

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8. A solid sphere and a sloid hemisphere have equal total surface area. Prove that the ratio of their volume is $3\sqrt{3}:4$.

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9. The outer and the inner surface areas of a spherical copper shell are $576\pi cm^2$ and $324\pi cm^2$ respectively. Find the volume of the material required to make the shell.

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10. A container open at the top is in the form of a frustum of a cone of height 16 cm with radii of its lower and upper ends are 8 cm and

20 cm respectively. Find the cost of milk which can completely fill a container at the rate of Rs. 40 per litre.

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Exercise 7 3

1. A vessel is in the form of a hemispherical bowl mounted by a hollow cylinder. The diameter is 14 cm and the height of the vessel is 13 cm. Find the capacity of the vessel.

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2. Nathan, an engineering student was asked to make a model shaped like a cylinder with two cones attached at its two ends. The diameter of the model is 3 cm and its length is 12 cm. If each cone has a height of 2 cm, find the volume of the model that Nathan made.

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3. From a solid cylinder whose height is 2.4 cm and the diameter 1.4 cm, a cone of the same height and same diameter is carved out. Find the volume of the remaining solid to the nearest cm^3.

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4. A capsule is in the shape of a cylinder with two hemisphere stuck to each of its ends. If the length of the entire capsule is 12 mm and

the diameter of the capsule is 3 mm, how much medicine it can hold?

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5. A right circular cylinder just enclose a sphere of radius r units. Calculate

the surface area of the sphere

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6. A right circular cylinder just enclose a sphere of radius r units. Calculate

the curved surface area of the cylinder

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7. A right circular cylinder just enclose a sphere of radius r units. Calculate

the ratio of the areas obtained in (i) and (ii).

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8. A shuttle cork used for playing badminton has the shape of a frustum of a cone is mounted on a hemisphere. The diameters of the frustum are 5 cm and 2 cm. The height of the entire shuttle cork is 7 cm. Find its external surface area.

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Exercise 7 4

1. An aluminium sphere of radius 12 cm is melted to make a cylinder of radius 8 cm. Find the height of the cylinder.

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2. Water is flowing at the rate of 15 km per hour through a pipe of diameter 14 cm into a rectangular tank which is 50 m long and 44 m wide. Find the time in which the level of water in the tanks will rise by 21 cm.

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3. A conical flask is full of water. The flask has base radius r units and height h units, the water poured into a cylindrical flask of base radius xr units. Find the height of water in the cylindrical flask.

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4. A solid right circular cone of diameter 14 cm and height 8 cm is melted to form a hollow

sphere. If the external diameter of the sphere is 10 cm, find the internal diameter.

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5. Seenu's house has an overhead tank in the shape of a cylinder. This is filled by pumping water from a sump (underground tank) which is in the shape of a cuboid. The sump has dimensions $2m \times 1.5m \times 1m$. The overhead tank has its radius of 60 cm and height 105 cm. Find the volume of the water left in the sump

after the overhead tank has been completely filled with water from the sump which has been full, initially.

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6. The internal and external diameter of a hollow hemispherical shell are 6 cm and 10 cm respectively. If it is melted and recast into a solid cylinder of diameter 14 cm, then find the height of the cylinder.

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

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8. A hemispherical bowl is filled to the brim with juice. The juice is poured into a cylindrical vessel whose radius is 50% more than its

height. If the diameter is same for both the bowl and the cylinder then find the percentage of juice that can be transferred from the bowl into the cylindrical vessel.

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Exercise 7 5 Multiple Choice Questions

1. The curved surface area of a right circular cone of height 15 cm and base diameter 16 cm is

A. $60\pi cm^2$

B. $68\pi cm^2$

C. $120\pi cm^2$

D. $136\pi cm^2$

Answer: D

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2. If two solid hemispheres of same base radius r units are joined together along their

bases, then curved surface area of this new solid is

A. $4\pi r^2$ sq units

B. $6\pi r^2$ sq units

C. $3\pi r^2$ sq units

D. $8\pi r^2$ sq units

Answer: A

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3. Th e height of a right circular cone whose radius is 5 cm and slant height is 13 cm will be

A. 12cm

B. 10cm

C. 13cm

D. 5cm

Answer: A

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4. If the radius of the base of a right circular cylinder is halved keeping the same height, then the ratio of the volume of the cylinder thus obtained to the volume of original cylinder is

A. $1:2$

B. $1:4$

C. $1:6$

D. $1:8$

Answer: B

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5. The total surface area of a cylinder whose radius is $\frac{1}{3}$ of its height is

A. $\frac{9\pi h^2}{8}$ sq units

B. $24\pi h^2$ sq units

C. $\frac{8\pi h^2}{9}$ sq units

D. $\frac{56\pi h^2}{9}$ sq units

Answer: C

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6. In a hollow cylinder, the sum of the external and internal radii is 14 cm and the width is 4 cm. If its height is 20 cm, the volume of the material in it is

A. $5600\pi cm^3$

B. $11200\pi cm^3$

C. $56\pi cm^3$

D. $3600\pi cm^3$

Answer: B

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7. If the radius of the base of a cone is tripled and the height is doubled then the volume is

A. made 6 times

B. made 18 times

C. made 12 times

D. unchanged

Answer: B

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8. The total surface area of a hemi-sphere is how much times the square of its radius

A. π

B. 4π

C. 3π

D. 2π

Answer: C

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9. A solid sphere of radius x cm is melted and cast into a shape of a solid cone of same radius. The height of the cone is

A. 3x cm

B. x cm

C. 4x cm

D. 2x cm

Answer: C

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10. A frustum of a right circular cone is of height 16cm with radii of its ends as 8cm and 20cm. Then, the volume of the frustum is

A. $3328\pi cm^3$

B. $3228\pi cm^3$

C. $3240\pi cm^3$

D. $3340\pi cm^3$

Answer: A

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11. A shuttle cock used for playing badminton has the shape of the combination of

A. a cylinder and a sphere

B. a hemisphere and a cone

C. a sphere and a cone

D. frustum of a cone and a hemisphere

Answer: D

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12. A spherical ball of radius r_1 units is melted to make 8 new identical balls each of radius r_2 units. Then $r_1 : r_2$ is

A. $2:1$

B. $1:2$

C. $4:1$

D. $1:4$

Answer: A

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13. The volume (in cm^3) of the greatest sphere that can be cut off from a cylindrical log of wood of base radius 1 cm and height 5 cm is

A. $\frac{4}{3}\pi$

B. $\frac{10}{3}\pi$

C. 5π

D. $\frac{20}{3}\pi$

Answer: A

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14. The height and radius of the cone of which the frustum is a part are h_1 units and r_1 units respectively. Height of the frustum is h_2 units and radius of the smaller base is r_2 units. If $h_2 : h_1 = 1 : 2$ then $r_2 : r_1$ is

A. $1 : 3$

B. $1 : 2$

C. None of these

D. $3 : 1$

Answer: B

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15. The ratio of the volumes of a cylinder, a cone and a sphere, if each has the same diameter and same height is

A. $1:2:3$

B. $2:1:3$

C. $1:3:2$

D. $3:1:2$

Answer: D

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Unit Exercise 7

1. The barrel of a fountain-pen cylindrical in shape, is 7 cm long and 5 cm in diameter. A full barrel of ink in the pen will be used for writing 330 words on an average. How many words can be written using a bottle of ink containing one fifth of a litre ?

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2. A hemi-spherical tank of radius 1.75 m is full of water. It is connected with a pipe which empties the tank at the rate of 7 litre per second. How much time will it take to empty the tank completely ?

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3. Find the maximum volume of a cone that can be carved out of a solid hemisphere of radius r units.

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4. An oil funnel of tin sheet consists of a cylindrical portion 10 cm long attached to a frustum of a cone. If the total height is 22 cm, the diameter of the cylindrical portion be 8 cm and the diameter of the top of the funnel be

18 cm, then find the area of the tin sheet required to make the funnel.

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5. Find the number of coins, 1.5 cm in diameter and 2 mm thick, to be melted to form a right circular cylinder of height 10 cm and diameter 4.5 cm.

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6. A hollow metallic cylinder whose external radius is 4.3 cm and internal radius is 1.1 cm and whole length is 4 cm is melted and recast into a solid cylinder of 12 cm long. Find the diameter of solid cylinder.

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7. The slant height of a frustum of a cone is 4 m and the perimeter of circular ends are 18 m

and 16 m. Find the cost of painting its curved surface area at Rs 100 per sq. m.

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8. A hemi-spherical hollow bowl has material of volume $\frac{436\pi}{3}$ cubic cm. Its external diameter is 14 cm. Find its thickness.

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9. The volume of a cone is $1005\frac{5}{7}$ cu. Cm. The area of its base is $201\frac{1}{7}$ sq. cm. Find the slant height of the cone.

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10. A metallic sheet in the form of a sector of a circle of radius 21 cm has central angle of 216°. The sector is made into a cone by bringing the bounding radii together. Find the volume of the cone formed.

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