Surface Areas and Volumes

Question 1.
If a solid metallic sphere of radius 8 cm is melted and recasted into n spherical solid balls of radius 1 cm, then n =
(a) 500
(b) 510
(c) 512
(d) 516

Answer: (c) 512

Question 2.
The radii of the top and bottom of a bucket of slant height 13 cm are 9 cm and 4 cm respectively. The height of the bucket is
(a) 10 cm
(b) 12 cm
(c) 15 cm
(d) 16 cm

Answer: (b) 12 cm

Question 3.
If the volume of a cube is 343 cm , then its edge is
(a) 9cm
(b) 8cm
(c) 49cm
(d) 7cm

Answer: (d) 7cm

Question 4.
A solid piece of iron in the form of a cuboid of dimensions 49 cm × 33 cm × 24 cm, is moulded to

form a solid sphere. The radius of the sphere is
(a) 21 cm
(b) 23 cm
(c) 25 cm
(d) 19 cm

Answer: (a) 21 cm

Question 5.
A conical tent with base-radius 7 m and height 24 m is made from 5 m wide canvas. The length of the canvas used is (Take $\pi = \frac{22}{7}$)
(a) 100 m
(b) 105 m
(c) 110 m
(d) 115 m

Answer: (c) 110 m

Question 6.
The radius (in cm) of the largest right circular cone that can be cut out from a cube of edge 4.2 cm is:
(a) 4.2
(b) 2.1
(c) 8.1
(d) 1.05

Answer: (b) 2.1

Question 7.
If the curved surface area of a solid right circular cylinder of height h and radius r is one-third of its total surface area, then
(a) h = $\frac{1}{3}$ r
(b) h = $\frac{1}{2}$ r
(c) h = r
(d) h = 2r

Answer: (b) h = $\frac{1}{2}$ r

Question 8.
A surahi is the combination of:
(a) a sphere and a cylinder
(b) a hemisphere and a cylinder
(c) two hemispheres
(d) a cylinder and a cone

Answer: (a) a sphere and a cylinder

Question 9.
A right circular cylinder of radius r cm and height h cm (h > 2r) just encloses a sphere of diameter
(a) r cm
(b) 2r cm
(c) h cm
(d) 2h cm

Answer: (b) 2r cm

Question 10.
The total surface area of a hemispherical solid having radius 7 cm is
(a) 462 cm^2
(b) 294 cm^2
(c) 588 cm^2
(d) 154 cm^2

Answer: (a) 462 cm^2

Question 11.
The volume of the cuboid whose length, breadth and height is 12cm, 8cm and 6cm is
(a) 568 cu.cm
(b) 576 cu.cm
(c) 576 sq.cm
(d) 570 cu.cm

Answer: (b) 576 cu.cm

Question 12.
A shuttlecock used for playing badminton has the shape of the combination of
(a) a cylinder and a sphere

(b) a sphere and a cone
(c) a cylinder and a hemisphere
(d) frustum of a cone and a hemisphere

Answer: (d) frustum of a cone and a hemisphere

Question 13.
If the diameter of a metallic sphere is 6 cm, it is melted and a wire of diameter 0·2 cm is drawn, then the length of the wire made shall be
(a) 24 m
(b) 28 m
(c) 32 m
(d) 36 m

Answer: (d) 36 m

Question 14.
The radius and height of a right circular cone and that of a right circular cylinder are respectively equal. If the volume of the cylinder is 300 cu.cm, then the volume of the cone is
(a) 300 cu.cm
(b) 100 cu.cm
(c) 600 cu.cm
(d) 900 cu.cm

Answer: (b) 100 cu.cm

Question 15.
A cube whose edge is 20 cm long, has circles on each of its faces painted black. What is the total area of the unpainted surface of the cube if the circles are of the largest possible areas?
(a) 90.72 cm^2
(b) 256.72 cm^2
(c) 330.3 cm^2
(d) 514.28 cm^2

Answer: (d) 514.28 cm^2

Question 16.
The volumes of two spheres are in the ratio 125 : 64. The ratio of their surface areas is
(a) 9 : 16

(b) 16 : 9
(c) 25 : 16
(d) 16 : 25

Answer: (c) 25 : 16

Question 17.
A container (open at the top) made up of metal sheet is in the form of a frustum of a cone of height 16 cm with radii of its lower and upper ends 8cm and 20 cm respectively. The amount of liquid the container can hold is (Take $\pi = 3.14$)
(a) 104.49 |
(b) 10.95 |
(c) 12 |
(d) 10.45 |

Answer: (d) 10.45 |

Question 18.
A mason constructs a wall of dimensions 270 cm × 300 cm × 350 cm with the bricks each of size 22.5 cm × 11.25 cm × 8.75 cm and it is assumed that 1/8 space is covered by the mortar.
Then the number of bricks used to construct the wall is
(a) 11100 cm
(b) 11200 cm
(c) 11000 cm
(d) 11300 cm

Answer: (b) 11200 cm

Question 19.
If two solid hemispheres of same base radius are joined together along their bases, then curved surface area of this new solid is
(a) $3\pi r^2$
(b) $4\pi r^2$
(c) $5\pi r^2$
(d) $6\pi r^2$

Answer: (b) $4\pi r^2$

Question 20.
If the radius and height of a cylinder are in the ratio 5 : 7 and its volume is 550 cm^3, then its radius is equal to (Take $\pi = \frac{22}{7}$)
(a) 5 cm
(b) 7 cm
(c) 6 cm
(d) 10 cm

Answer: (a) 5 cm

Question 21.
The curved surface area of glass having radii 3 cm and 4 cm respectively and slant height 10 cm is
(a) 55 cm^2
(b) 110 cm^2
(c) 220 cm^2
(d) 440 cm^2

Answer: (c) 220 cm^2

Question 22.
A piece of paper is in the shape of a semi¬circular region of radius 10 cm. It is rolled to form a right circular cone. The slant height is
(a) 5 cm
(b) 10 cm
(c) 15 cm
(d) 20 cm

Answer: (b) 10 cm

Question 23.
The base area of the cylinder is 80 sq.cm. If its height is 5cm, then its volume is
(a) 200 cu.cm
(b) 80 cu.cm
(c) 100 cu.cm
(d) 400 cu.cm

Answer: (d) 400 cu.cm

Question 24.
The cost of painting a cubical box of side 3m at the rate of Rs.2 per sq.m is
(a) Rs.108
(b) Rs.120
(c) Rs.125
(d) Rs.112

Answer: (a) Rs.108
