

Test - 15

Time : 30 min
out of : 24 marks

1)

A sphere of radius R has volume equal to that of a cone of radius R , the height of the cone is

(a) R (b) $2R$ (c) $3R$ (d) $4R$

2) The height of a cone is 12 cm . If its volume is $100\pi\text{ cm}^3$, then its slant height is

(a) 12 cm (b) 13 cm (c) 15 cm (d) 16 cm

3) A hemispherical bowl has a radius of 3.5 cm . The volume of water it would contain =

(a) 86.5 cm^3 (b) 89.8 cm^3 (c) 92.5 cm^3 (d) 93.5 cm^3

4) A conical tent is 9 m high and radius of its base is 12 m . The cost of canvas required to make it, if a square metre canvas costs ₹ 20 is ₹ —

(a) 11314 (b) 12390 (c) 15320 (d) 16230

5) The diameters of two cones are equal. If their slant heights are in the ratio $3:2$, then ratio of their C.S.A is

(a) $2:3$ (b) $3:2$ (c) $1:2$ (d) none of these

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- 6) A right $\triangle ABC$ with side 6m, 8m and 10m is revolved about the side 8m. The volume of solid so obtained is
(a) 25π (b) 50π (c) 96π (d) 150π
- 7) The radius of a sphere whose surface area is 314 cm^2 is
(a) 7cm (b) 6cm (c) 5cm (d) none of these
- 8) The surface area of a sphere whose diameter is 28cm is
(a) 2462 cm^2 (b) 2464 cm^2 (c) 2460 cm^2 (d) none
- 9) How many metres of cloth, 5m wide will be required to make a conical tent of base radius 7m and height 24m? (a) 550m (b) 275m (c) 110m (d) 440m
- 10) The ratio of C.S.A of two cones if their diameter of the base are equal and slant height are in the ratio 4:3 is
(a) 4:3 (b) 2:3 (c) 5:6 (d) 3:4
- 11) The radius of a sphere is $3r$, then its volume is
(a) $\frac{4\pi r^3}{3}$ (b) $36\pi r^3$ (c) $\frac{8\pi r^3}{3}$ (d) $\frac{32\pi r^3}{3}$
- 12) A cone is 8.4cm high and radius is 2.1cm. It is melted and recast into a sphere. The radius of the sphere is
(a) 4.2cm (b) 2.1cm (c) 2.4cm (d) 1.6cm
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IX Test-15 (Answers)



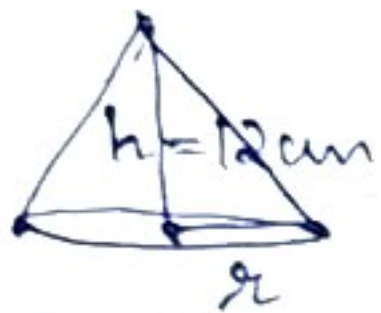
$$\frac{4}{3}\pi R^3 = \frac{1}{3}\pi R^2 h$$

$$h = 4R \text{ (d)}$$

- 1 d
- 2 b
- 3 b
- 4 a
- 5 b

2) $h = 12 \text{ cm}$

$$\text{Volume} = \frac{1}{3}\pi r^2 h = 100\pi$$



$$\Rightarrow \frac{1}{3} \times r^2 \times 12 = 100$$

$$r^2 = 25$$

$$r = 5 \text{ cm}$$

$$l = \sqrt{h^2 + r^2}$$

$$= \sqrt{144 + 25}$$

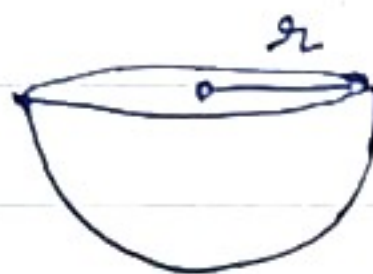
$$= \sqrt{169}$$

$$= 13 \text{ cm (b)}$$

- 6 c
- 7 c
- 8 b
- 9 c
- 10 a
- 11 b
- 12 b

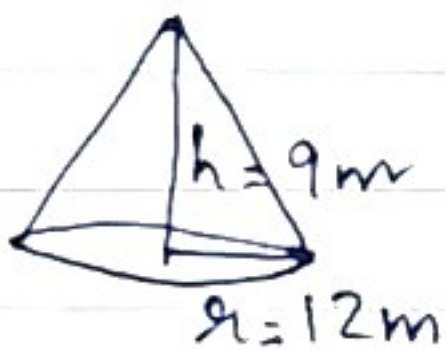
3) $r = 3.5 \text{ cm}$

$$\text{Volume} = \frac{2}{3}\pi r^3$$



$$= \frac{2}{3} \times \frac{22}{7} \times 3.5 \times 3.5 \times 3.5 = \frac{269.5}{3} = 89.8 \text{ cm}^3 \text{ (b)}$$

4)



Area of Canvas required = $\pi r l$

$$= \frac{22}{7} \times 12 \times 15$$

$$= \frac{3960}{7} \text{ m}^2$$

$$l = \sqrt{r^2 + h^2}$$

$$= \sqrt{144 + 81}$$

$$= \sqrt{225} = 15 \text{ m}$$

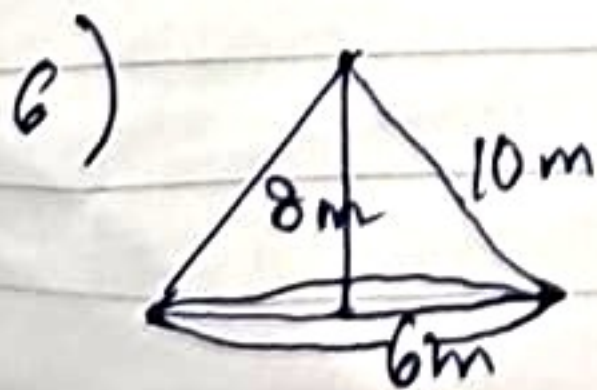
$$\therefore \text{Cost of Canvas} = \frac{3960}{7} \times 20 = \frac{79200}{7}$$

$$= ₹11314 \text{ (a)}$$

5) $r_1 = r_2$

$$\frac{l_1}{l_2} = \frac{3}{2}$$

$$\frac{\text{C.S.A}_{\text{cone 1}}}{\text{C.S.A}_{\text{cone 2}}} = \frac{\pi r_1 l_1}{\pi r_2 l_2} = \frac{l_1}{l_2} = \frac{3}{2} \text{ (b)}$$



$$r = 6 \text{ m}$$

$$h = 8 \text{ m}$$

$$l = 10 \text{ m}$$

$$\text{Volume} = \frac{1}{3}\pi r^2 h = \frac{1}{3} \times \pi \times 36 \times 8$$

$$= 96\pi \text{ cm}^3 \text{ (c)}$$

$$7) 4\pi r^2 = 314$$

$$4 \times 3.14 \times r^2 = 314$$

$$r^2 = \frac{314 \times 100}{4 \times 314} = 25$$

$$r = 5 \text{ cm (c)}$$

$$8) r = 14 \text{ cm}$$

$$4\pi r^2 = 4 \times \frac{22}{7} \times 14^2 = 2464 \text{ cm}^2 \text{ (b)}$$

9)



b
5m



h = 24m

r = 7m

$$l = \sqrt{h^2 + r^2}$$

$$= \sqrt{576 + 49} = \sqrt{625} = 25 \text{ m}$$

$$l \times b = \pi r l$$

$$\Rightarrow 5 \times l = \frac{22}{7} \times 7 \times 25$$

$$l = 110 \text{ m (c)}$$

$$10) r_1 = r_2$$

$$\frac{l_1}{l_2} = \frac{4}{3}$$

$$\frac{\text{C.S. } A_1}{\text{C.S. } A_2} = \frac{\pi r_1 l_1}{\pi r_2 l_2} = \frac{4}{3} \text{ (a)}$$

$$11) \text{ Volume} = \frac{4}{3} \pi R^3 = \frac{4}{3} \pi (3r)^3 = \frac{4}{3} \pi \times 27r^3 = 36\pi r^3 \text{ (b)}$$

$$12) h = 8.4 \text{ cm}$$

$$r = 2.1 \text{ cm}$$

Volume of cone = volume of sphere

$$\Rightarrow \frac{1}{3} \pi r^2 h = \frac{4}{3} \pi R^3$$

$$2.1 \times 2.1 \times 8.4 = 4 \times R^3$$

$$8 \times 2.1 \times 2.1 \times \frac{1}{4} = R^3 \Rightarrow R = 2.1 \text{ cm (b)}$$

