

Quiz Date: 26th March 2020

Q1. Total surface area of a cylinder mounted with a hemispherical bowl on one end is 2552 cm^2 . If height of cylinder is 8 cm then find the volume of the solid body?

- (a) $10443\frac{1}{3}$
- (b) $10677\frac{1}{3}$
- (c) $10547\frac{1}{3}$
- (d) $10977\frac{1}{3}$
- (e) $10787\frac{1}{3}$

Q2. A cone is fitted completely on the top face of a cubical block. If height of cone is 7 cm and Volume of the cone is 66 cm^3 , then find the area of the top face of the cubical block that remain uncovered by the cone.

- (a) $\frac{51}{7} \text{ cm}^2$
- (b) $\frac{52}{7} \text{ cm}^2$
- (c) $\frac{53}{7} \text{ cm}^2$
- (d) $\frac{54}{7} \text{ cm}^2$
- (e) None of these

Q3. Length of a rectangular blackboard is 10 cm more than that of its breadth. If its length is increased by 8 cm and its breadth is decreased by 5 cm, its area remains unchanged. Find the area of the black board.

- (a) 1200 sq cm
- (b) 1250 sq cm
- (c) 320 sq cm
- (d) Data inadequate
- (e) 1320 sq cm

Q4. Three circles of radii 4 cm, 6 cm and 8 cm touch each other externally. Find the area of the triangle formed by the line-segments joining- the centres of the three circle ?

- (a) $144\sqrt{13}$ sq. cm
- (b) $12\sqrt{105}$ sq. cm
- (c) $6\sqrt{6}$ sq. cm
- (d) $24\sqrt{6}$ sq. cm
- (e) $12\sqrt{6}$ sq. cm

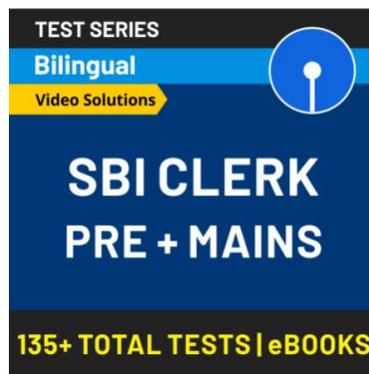
Q5. Sum of area of a circle and a rectangle is equal to 1166 sq.cm. The diameter of the circle is 28 cm. What is the sum of the circumference of the circle and the perimeter of the rectangle if the length of the rectangle is 25 cm?

- (a) 186 cm
- (b) 182 cm

- (c) 184 cm
- (d) Cannot be determined
- (e) 192 cm

Q6. The radius of a circle is three fifth of that of a sphere. The volume of the sphere is $\frac{4000\pi}{3} m^3$. If ratio between area of a square and that of the circle is 14: 11, then what is the perimeter of the square (Use $\pi \frac{22}{7}$)

- (a) 64 m
- (b) 52 m
- (c) 48 m
- (d) 32 m
- (e) 40 m



Q7. The height of a cone is equal to perimeter of an isosceles triangle whose equal and unequal sides are 6 cm and 9 cm respectively. If diameter of cone is 16 cm, what is the volume of cone (in cm^3)? (take $\pi = 22/7$)

- (a) 1,208
- (b) 1,408
- (c) 1,610
- (d) 1,480
- (e) None of these

Q8. A large solid metallic cylinder whose radius and height are equal to each other is to be melted and 48 identical solid balls are to be recast from the liquid metal so formed. What is the ratio of the radius of a ball to the radius of the cylinder?

- (a) 1 : 16
- (b) 1 : 12
- (c) 1 : 8
- (d) 1 : 4
- (e) 4: 1

Directions (9-15): What value should come in the place of question mark (?) in the following questions?

Q9. $\frac{1}{4}$ of 420 + $\frac{3}{5}$ of 655 - 30% of 550 = ?

- (a) 345

- (b) 333
- (c) 444
- (d) 433
- (e) 233

Q10. $\frac{?}{60}$ of 720 - 60% of 20 = $\frac{1}{4}$ of 24

- (a) 3.5
- (b) 2.5
- (c) 1.5
- (d) 2
- (e) 3

Q11. $\sqrt{20\% \text{ of } 110 + ?\% \text{ of } 300} - 50\% \text{ of } 700 = 0$

- (a) 42333
- (b) 45000
- (c) 41250
- (d) 40826
- (e) 38455

Q12. $243 \times 729 = 2187 \times 3^?$

- (a) 4
- (b) 6
- (c) 5
- (d) 3
- (e) 8

Q13. $(21.6)^2 \div (-7.2)^2 \times ? = 15483.36 - 15276.09$

- (a) 23.03
- (b) 23.3
- (c) 32.03
- (d) 32.3
- (e) 42.3

Q14. $? + \sqrt{841} + \frac{1}{(3)^{-3}} = 12^2 + 3 \times 37$

- (a) 217
- (b) 176
- (c) 203
- (d) 199
- (e) 165

Q15. $37.5\% \text{ of } 400 + \frac{3}{11} \text{ of } 990 = ? + 81$

- (a) 339
- (b) 329
- (c) 319

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- (d) 341
(e) 363

Solutions

S1. Ans. (b)

Sol.

$$T.S.A = 2\pi r^2 + \pi r^2 + 2\pi r h = 2552$$

$$3\pi r^2 + 2\pi r \times 8 = 2552$$

$$3r^2 + 16r = \frac{2552}{22} \times 7$$

$$3r^2 + 16r = 812$$

$$3r^2 + 16r - 812 = 0$$

$$3r^2 + 58r - 42r - 812 = 0$$

$$r(3r + 58) - 14(3r + 58) = 0$$

$$r = 14, -\frac{58}{3}$$

$$\text{Required volume} = \frac{2}{3}\pi r^3 + \pi r^2 h$$

$$= \frac{2}{3} \times \frac{22}{7} \times (14)^3 + \frac{22}{7} \times (14)^2 \times 8$$

$$= 5749\frac{1}{3} + 4928$$

$$= 10677\frac{1}{3}$$

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S2. Ans. (d)

Sol.

$$\text{Volume of cone} = \pi r^2 \frac{h}{3} = 66$$

$$r^2 = \frac{66}{22} \times \frac{7 \times 3}{7} = 9$$

$$r = 3 \text{ cm.}$$

[Diameter of cone = Side of block]

$$\text{Area of tope face} = 6 \times 6 = 36 \text{ cm}^2$$

$$\text{Area of uncovered region} = 36 - \pi r^2$$

$$= 36 - \frac{22}{7} \times (3)^2$$

$$= \frac{54}{7} \text{ cm}^2$$

S3. Ans.(a)

$$\text{Sol. } L = (b + 10)$$

$$(L + 8)(b - 5) = Lb$$

$$(b + 18)(b - 5) = (b + 10)b$$

$$b = 30 \text{ cm}$$

$$L = 40 \text{ cm}$$

$$\text{Area} = 1200 \text{ cm}^2$$

S4. Ans.(d)

Sol.

Side of ΔABC are 10, 12, 14

$$S = \frac{10+12+14}{2} = 18$$

$$\text{Area} = \sqrt{S(S-a)(S-b)(S-c)}$$

$$= \sqrt{18 \times 8 \times 4 \times 6} = 24\sqrt{6} \text{ cm}^2$$

S5. Ans. (b)

$$\text{Sol. Area of the circle} = \frac{22}{7} \times (14)^2 = 616 \text{ cm}^2$$

$$\text{Area of the rectangle} = 1166 - 616 = 550 \text{ cm}^2$$

$$\text{Breadth of the rectangle} = \frac{550}{25} = 22 \text{ cm}^2$$

$$\text{So, required sum} = 2 \times \frac{22}{7} \times 14 + 2(25 + 22) = 182 \text{ cm}$$

S6. Ans.(c)

Sol.

$$\text{Volume of sphere} = \frac{4}{3}\pi r^3$$

Where, r = radius of sphere

$$\therefore \frac{4}{3}\pi r^3 = \frac{4000\pi}{3}$$

$$\Rightarrow r^3 = 1000$$

$$\Rightarrow r = 10 \text{ m}$$

$$\therefore \text{Radius of circle} = \frac{3}{5} \times 10 = 6 \text{ m}$$

ATQ,

$$\frac{a^2}{\pi r^2} = \frac{14}{11}; a = \text{side of square}$$

$$\Rightarrow \frac{7}{22} \times \frac{a^2}{36} = \frac{14}{11}$$

$$\Rightarrow a^2 = 4 \times 36$$

$$\Rightarrow a = 12 \text{ m}$$

$$\therefore \text{perimeter} = 48 \text{ m}$$

S7. Ans. (b)

Sol.

$$\begin{aligned} \text{Height of cone} &= 2 \times 6 + 9 \\ &= 21 \text{ cm} \end{aligned}$$

$$\therefore \text{Volume of cone} = \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \times \frac{22}{7} \times 8^2 \times 21$$

$$= 1,408 \text{ cm}^3$$

S8. Ans.(d)

Sol. Suppose radius of the cylinder is R and that of the spherical ball is r, then according to the given condition,

$$\pi R^2 \times R = 48 \times \frac{4\pi}{3} \times r^3$$

$$\Rightarrow \frac{R^3}{r^3} = 64 \text{ or } R:r = 4:1$$



S9. Ans.(b)

Sol.

$$? = \frac{1}{4} \times 420 + \frac{3}{5} \times 655 - \frac{30}{100} \times 550$$

$$? = 105 + 393 - 165$$

$$? = 333$$

S10. Ans.(c)

Sol.

$$\frac{?}{60} \times 720 - \frac{60}{100} \times 20 = \frac{1}{4} \times 24$$

$$\Rightarrow 12 \times ? = 18$$

$$\Rightarrow ? = 1.5$$

S11. Ans.(d)

Sol.

$$\sqrt{\frac{20}{100} \times 110 + \frac{?}{100} \times 300} = \frac{50}{100} \times 700$$

$$\Rightarrow \sqrt{22 + 3 \times ?} = 350$$

$$\Rightarrow ? = \frac{122478}{3}$$
$$\Rightarrow ? = 40826$$

S12. Ans.(a)

Sol.

$$2187 \times 3^? = 243 \times 729$$

$$\Rightarrow 3^? = \frac{(3)^5 \times (3)^6}{(3)^7}$$

$$\Rightarrow 3^? = 3^4$$

$$\Rightarrow ? = 4$$

S13. Ans.(a)

Sol.

$$9 \times ? = 207.27$$

$$\Rightarrow ? = 23.03$$

S14. Ans.(d)

Sol.

$$? = 144 + 111 - 29 - 27$$
$$= 199$$

S15. Ans.(a)

$$\text{Sol. } \frac{3}{8} \times 400 + \frac{3}{11} \times 990 = 150 + 270 = 420$$

$$\therefore ? = 420 - 81 = 339$$

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