Menstruation

QUESTIONS

MATHEMATICS Comprehensive Book

1. The area of a circle inscribed in an equilateral triangle is 190π cm². Find the perimeter of the triangle.

(a) 16cm	(b) 32cm
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- (c) 64cm (d) 72cm
- (e) None of these

2. The volume of a cuboid is 504 $\sqrt{5}$ cm². If the ratio between its height is $\sqrt{2} : \sqrt{5}$ then find the breadth

of the cuboid. (Where length of the cuboid is $7\sqrt{2}$ cm.)

(a) $6\sqrt{2}$ cm	(b) 3 √2 cm
(c) $2\sqrt{2}$ cm	(d) $8\sqrt{2}$ cm

(e) None of these

3. The ratio of the areas of the incircle and circumcircle of a square is _____

- (a) 1 : 1 (b) 1 : 2 (c) 1 : 3 (d) 1 : 4
- (e) None of these

4. Sides of a triangular field are 14 m, 15 m and 16 m. With the three corners of the field a cow, a buffalo and a horse are tied separately with ropes of length 5.25 m each to graze in the field. The area of the field which cannot be grazed by three animals is _____

(a)
$$\frac{60\sqrt{613} - 393}{8} m^2$$

(b) $\frac{60\sqrt{663} - 693}{16} m^2$
(c) $\frac{60\sqrt{619} - 453}{16} m^2$
(d) $\frac{60\sqrt{658} - 579}{8} m^2$

(e) None of these

- 5. Three circles each of radius 10.5 cm are drawn in such a way that each of them touches the other two. Find the area enclosed between these circles.
 - (a) $\frac{61}{3} (5\sqrt{3} 13) \text{ cm}^2$ (b) $\frac{63}{4} (5\sqrt{3} - 13) \text{ cm}^2$ (c) $\frac{63}{4} (7\sqrt{3} - 11) \text{ cm}^2$ (d) $\frac{61}{4} (7\sqrt{3} - 11) \text{ cm}^2$

(e) None of these

6. If all the vertices of a rhombus lie on a circle of area 2464 cm², then find the area of shaded part as shown below:



	(a) 576 cm ²	(b) $756 \mathrm{cm}^2$	
	(c) 896 cm ²	(d) $928 \mathrm{cm}^2$	
	(e) None of these		
7.	Find the approximate difference of the area	as of two segments of a circle formed by a chord of length	
	7 cm subtending an angle of 90 $^{\circ}$ at the center.		
	(a) 77cm^2	(b) 70 cm^2	
	(c) $63 \mathrm{cm}^2$	(d) 54 cm^2	
	(e) None of these		
8. A piece of wire 15 cm long is bent into the form of an arc of a circle subtending an angle of		e form of an arc of a circle subtending an angle of 30° at	
	its centre. Find the area of the sector so formed.		
	(a) 108.68 cm ²	(b) 214.77 cm ²	
	(c) 208.59 cm^2	(d) 227.68 cm ²	
	(e) None of these		
9.	Area swept by a clock in a time interval is	$\frac{84\pi}{5}$ cm ² . If it is given that the length of the minute hand	
	of the clock is 12 cm, then which one of the following can be the correct time interval?		
	(a) 10 minutes	(b) 12 minutes	
	(c) 7 minutes	(d) 9 minutes	

(e) None of these

10. If H is a regular hexagon circumscribed to a circle and h is a regular hexagon inscribed to the same circle, then find the ratio of areas of H and h respectively.

- (a) $\frac{3}{4}$ (b) $\frac{4}{3}$ (c) $\frac{6}{5}$ (d) $\frac{5}{6}$
- (e) None of these

11. In the following figure, PQRS is a square, which is circumscribed by a circle and also a circle is inscribed in the square. If radius of the smaller circle is r, then the area of the shaded region (in cm2)



(b) $\left(\frac{\pi+2}{2}\right)r^2$ (c) $\left(\frac{2\pi-3}{2}\right)r^2$

(e) None of these

- 12. Find the difference in the areas of the regular hexagon circumscribing a circle of radius 15 cm and the regular hexagon inscribed in the circle.
 - (a) $53\sqrt{3}$ cm² (b) $175\sqrt{3}$ cm² (c) $75\sqrt{3}$ cm² (d) $100\sqrt{3}$ cm²
 - (e) None of these
- 13. A cylindrical tank with radius 50 cm is being filled by a circular pipe with internal diameter of 3 cm at the rate of 10 m/sec. Find the height of the water column in 24 minutes.
 - (a) 1632 cm (b) 1428 cm
 - (c) 1296 cm (d) 1022 cm
 - (e) None of these
- 14. If the difference between the areas of the circumcircle and in circle of an equilateral triangle is 77 cm², then the area of the triangle (in cm²) is _____

(a)
$$\frac{49\sqrt{3}}{2}$$
 cm²
(b) $\frac{63\sqrt{3}}{2}$ cm²
(c) $21\sqrt{3}^2$
(d) $21\sqrt{3}$ cm²

- (e) None of these
- 15. PQR is an equilateral triangle of side 3 cm. Taking P, Q and R as centre, circles of radius 1.5 cm are drawn. Find the area of the region within the triangle bounded by three circles.

(a)
$$\left(\frac{18\sqrt{3}-9\pi}{8}\right)$$
 cm²
(b) $\left(\frac{18\sqrt{3}-9\pi}{4}\right)$ cm²
(c) $\left(\frac{12\sqrt{3}-9\pi}{2}\right)$ cm²
(d) $\left(\frac{12\sqrt{3}-9\pi}{4}\right)$ cm²

(e) None of these

16. Find the area of the shaded region, where it is given that the radius of each circle is equal to 7 cm.



- (c) 234 cm^2
- (e) None of these

(b) 252 cm^2 (d) 240 cm^2 17. Find the total surface area of a hollow metallic hemisphere whose internal radius is 14 cm and the thickness of the metal is 3.5 cm.

(a) $1457 \mathrm{cm}^2$	(b) 3140.75cm^2
(c) $3503.50 \mathrm{cm}^2$	(d) 2570.25cm^2

(e) None of these

18. If the number of square decimetres on the of a is to the number of cubic decimetres In its volume, then find the diameter of the sphere.

(a) 3 cm	(b) 9 cm
(c) 6 cm	(d) 8 cm

(e) None of these

19. A hollow spherical shell is made of a metal of density 9.8 g/cm³. If its internal and external radii are 12 cm and 14 cm the weight of the shell. (Use n = 3.14)

(a) 41.69 kg	(b) 38.37 kg
(c) 39.68 kg	(d) 45.38 kg

(e) None of these

20. A sector of a circle of radius 15 cm has the angle 120°. It is rolled up so that two bounding radii are joined together to form a cone. Find the volume of the cone.

(a)
$$\frac{4430\sqrt{2}}{3}$$
 cm³
(b) $\frac{4500\sqrt{3}}{7}$ cm³
(c) $\frac{5500\sqrt{2}}{21}$ cm³
(d) $\frac{2430\sqrt{2}}{7}$ cm³

(e) None of these

21. Find the total surface area of a hemispherical bowl whose outer radius is 12 cm and inner radius is 5 cm.

(a) 258 π cm ²	(b) 457 π cm ²
(c) 338 π cm ²	(d) 388 π cm ²

(e) None of these

22. A solid iron pillar has some part in the form of a right circular cylinder and the remaining in the form of a right circular cone. The radius of the base of each part 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 the density of iron is 7g per cm3.

(a) 354.816 kg	(b) 282.726 kg
(c) 322.724 kg	(d) 298.628 kg
(e) None of these	

- 23. The inner radius of a cylindrical glass is 6 cm which contains some amount of liquid. Steve has some spherical marbles which are identical in shape and size. To know the radius of the spherical marbles he put 5 marbles in the cylindrical glass, thus the surface of the liquid raises by 5 cm. Find the radius of the marbles.
 - (a) 1 cm (b) 2 cm
 - (c) 3 cm (d) 4 cm
 - (e) None of these

24. A vessel is in the form of a hemispherical bowl mounted by a hollow cylinder. The diameter of both the parts is 24 cm and total height of the vessel is 20 cm. Find the capacity of the vessel.

(a) $2108 \pi \mathrm{cm}^3$	(b) 2304 $\pi \text{ cm}^3$
(c) $2412 \pi \mathrm{cm}^2$	(d) 2008 π cm ³

(e) None of these

25. In a bullet gun, powder is to be filled into a metallic enclosure. The metallic enclosure is made up of a cylindrical base and a conical top, each having a radius of 5 cm. If the ratio of the height of the cylindrical part to that of the conical part is 3: 2, then the ratio of their volumes will be:

(a) 3 : 4	(b) 9 : 2
(c) 8 : 7	(d) 11 : 9

(e) None of these

26. A cylindrical tub of radius 5 cm and height 9.8 cm is full of water. A solid in the form of a right circular cone mounted on a hemisphere is immersed into it. If the radius of each part is 3.5 cm and the height of the cone is 5 cm, then find the volume of water left in the tub.

(a) 316 cm ³	(b) $576 \mathrm{cm}^3$

(c) $616 \mathrm{cm}^2$	(d) 628 cm ³
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(e) None of these

27. A toy is in the form of a right circular cylinder with a hemisphere at one end and a cone at the other end. Their diameter is common, which is 4.2 cm. The heights of cylindrical and conical parts are 12 cm and 7 cm respectively. Find the volume of the toy.

(a) $308.284 \mathrm{cm}^3$	(b) $658.324 \mathrm{cm}^3$
(c) $218.064 \mathrm{cm}^3$	(d) 192.214 cm ³

(e) None of these

28. A cylindrical metallic pipe is 14 cm long. The difference between the outer and inner curved surface area is 44 cm². If the sum of outer and is 1.5 cm, then find the ratio of outer and inner radius of the respectively.

(a) 2 : 1	(b) 1 : 2
(c) 1 : 3	(d) 2 : 3
(e) None of these	

29.	The base of a pyramid is an n-sided regular polygon of area 720 cm ² the total surface area of the			
	pyramid is 1800 cm ² . Each of the pyramid has an area of 60 cm ² . Find the value of n.			
	(a) 36	(b) 26		
	(c) 18	(d) 22		
	(e) None of these			
30.	The inner length and breadth o	of rectangular sump are 27 m and 22 m respectively. Water flows through		
	an inlet pipe at 90 m per minute. The cross-sectional area of the pipe is 1 m ² . The tank takes only 3 minutes to get filled. Find the depth of the sump (in m).			
	(a) 3.74	(b) 4.54		
	(c) 2.84	(d) 3.24		
	(e) None of these			
31.	The length of minute hand of	f a clock is 28 cm. The area swept by the minute hand in 1 minute is		
		(1) 00 co 2		
	(a) $41.07 \mathrm{cm^2}$	(b) 38.69 cm ²		
	(c) $20.85 \mathrm{cm}^2$	(d) $36.24 \mathrm{cm}^2$		
	(e) None of these			
32.	How many plants can be put	in a circular flower bed whose circumference is 1760 dm allowing 56		
	dm ² for each plant?			
	(a) 2900	(b) 4400		
	(c) 4200	(d) 3800		
	(e) None of these			
33.	The side of a square exceeds t	the side of th another square by 4 cm. If the sum of areas of two squares		
	is 400 sq cm, then difference	of the sides of the squares is		
	(a) 8 cm	(b) 4 cm		
	(c) 6 cm	(d) 10 cm		
	(e) None of these			
34 .	A rectangular water reservoir	is 10.8 metres long and 3.75 metres wide at base. Water flows into it at		
	the rate of 36 m per sec. Through the pipe having the cross section 7.5 cm $ imes$ 4.5 cm. Then the hei			
	to which the water will rise in	the reservoir in 15 minutes is		
	(a) 2.7 m	(b) 3.2 m		
	(c) 2.9 m	(d) 3.2 m		
	(e) None of these			
35.	The area of the ring between t	two concentric circles of circumferences 77 cm and 55 cm is		
	(a) 221cm^2	(b) 231 cm^2		
	(c) 334cm^2	(d) $289 \mathrm{cm}^2$		
	(e) None of these			

36. The perimeter of an isosceles right angled triangle is 2 m unit. Find the area of the triangle.

- (a) $(3 + \sqrt{2})m^2$ sq unit (b) $(3 - 2\sqrt{2})m^2$ sq unit (c) $(3 + \sqrt{3})m^2$ sq unit (d) $(2 + \sqrt{2})m^2$ sq unit
- (e) None of these

37. The length of the largest possible rod that can be placed in a cubical room is $35\sqrt{3}$ m. The surface area (in sq metre) of the largest possible sphere that fits within the cubical room is _____

$\left(\text{Take } \pi = \frac{22}{7}\right)$	
(a) 4250	(b) 2450
(c) 3850	(d) 3500
(e) None of these	

38. If a metallic cone of radius 60 cm and height 48 cm is melted and recast into a metallic sphere of radius 12 cm. Find the number of spheres.

(a) 25	(b) 35
(c) 75	(d) 28

(e) None of these

39. There is a circular path around circular field. if the difference the circumference of the field and path is 110 m, then find the area of the path if sum of the radius of both the circular field and path is 67.5 cm. (round off to three decimal)

(a) 3.713 km ²	(b) 4.287 km ²
(c) $2.875 \mathrm{km}^2$	(d) 2.888km^2

- (e) None of these
- 40. In the figure shown below, if PQR is an equilateral triangle and radius of each circle is 14 cm. Find the area of the shaded portion.



ANSWER - KEY				
1. (d)	2. (a)	3. (b)	4. (b)	5. (c)
6. (c)	7. (c)	8. (b)	9. (c)	10. (b)
11. (a)	12. (e)	13. (c)	14. (a)	15. (a)
16. (b)	17. (c)	18. (c)	19. (a)	20. (c)
21. (b)	22. (a)	23. (c)	24. (b)	25. (b)
26. (c)	27. (c)	28. (a)	29. (c)	30. (b)
31. (a)	32. (b)	33. (b)	34. (a)	35. (b)
36. (b)	37. (c)	38. (a)	39. (a)	40. (c)