Q1. The radius of a sphere (in cm) whose volume is $12\pi\ \text{cm}^3$, is: **1 Mark**

A 3 **B** $3\sqrt{3}$ **C** $3^{\frac{2}{3}}$ **D** $3^{\frac{1}{3}}$

Q2. The radius (in cm) of the largest right circular cone that can be cut out from a cube Of edge 4.2 cm is **1 Mark**

A 4.2 **B** 2.1 **C** 8.4 **D** 1.05

Q3. If p - 1, p + 1 and 2p + 3 are in A.P., then the value of p is: **1 Mark**

A -2 **B** 4 **C** 0 **D** 2

Q4. A sphere of diameter 18 cm is dropped into a cylindrical vessel of diameter 36 cm, partly filled with water. If the sphere is completely submerged, then the water level rises (in cm) by **1 Mark**

A 3 **B** 4 **C** 5 **D** 6

Q5. If the radius of the base of a right circular cylinder is halved, keeping the height the same, then the ratio of the volume of the cylinder thus obtained to the volume of original cylinder is: **1 Mark**

A 1 : 2 **B** 2 : 1 **C** 1 : 4 **D** 4 : 1

Q6. IFor θ= 30°, the value of (2 sin θ cos θ) is: **1 Mark**

A 1 **B** $\frac{\sqrt{3}}{2}$ **C** $\frac{\sqrt{3}}{4}$ **D** $\frac{3}{2}$

Q7. The value of x for which 2x, (x + 10) and (3x + 2) are the three consecutive terms of an AP, is: **1 Mark**

A 6 **B** -6 **C** 18 **D** -18

Q8. Probability of happening of an event is denoted by p and probability of non-happening of the event is denoted by q. Relation between p and q is. **1 Mark**

A p + q = 1 **B** p = 1, q = 1 **C** p = q - 1 **D** p + a + 1 = 0

Q9. A solid right circular cone is cut into two parts at the middle of its height by a plane parallel to its base. The ratio of the volume of the smaller cone to the whole cone is: **1 Mark**

A 1 : 2 **B** 1 : 4 **C** 1 : 6 **D** 1 : 8

Q10. In an A.P., if the first term a = 7, nth term a_n = 84 and the sum of first n terms $s_n = \frac{2093}{2}$, then n is equal to: **1 Mark**

A 22 **B** 24 **C** 23 **D** 26

Q11. The area of metal sheet required to make a closed hollow cylinder of height 2.4m and base radius 0.7m, is. **1 Mark**

A 10.56m^2 **B** 13.52m^2 **C** 13.64m^2 **D** 14.08m^2

Q12. The curved surface area of a cone having height 24cm and radius 7cm, is: **1 Mark**

A 528cm^2 **B** 1056cm^2 **C** 550cm^2 **D** 500cm^2

Q13. The first three terms of an AP respectively are 3y - 1, 3y + 5 and 5*y* + 1. Then y equals: **1 Mark**

A -3 **B** 4 **C** 5 **D** 2

Q14. The first term of an A.P. is 5 and the last term is 45. If the sum of all the terms is 400, the number of terms is: **1 Mark**

A 20 **B** 8 **C** 10 **D** 16

Q15. If the area of a sector of a circle bounded by an arc of length $5\pi\text{cm}$ is equal to $20\pi\text{cm}^2$, then its radius is: **1 Mark**

A 12cm **B** 16cm **C** 8cm **D** 10cm

Q16. Which term of the AP 21, 42, 63, 84, ... is the 210? **1 Mark**

A 9th **B** 10th **C** 11th **D** 12th

Q17. A solid is hemispherical at the bottom and conical above. If the surface areas of the two parts are equal, then the ratio of its radius and the height of its conical part is: **1 Mark**

A $1:3$ **B** $1:\sqrt{3}$ **C** $1:1$ **D** $\sqrt{3}:1$

Q18. The surface area of a sphere is same as the curved surface area of a right circular cylinder whose height and diameter are 12cm each. The radius of the sphere is: **1 Mark**

A 3cm **B** 4cm **C** 6cm **D** 12cm

Q19. The area of the incircle of an equilateral triangle of side 42cm is: **1 Mark**

A $22\sqrt{3}\text{cm}^2$ **B** 231cm^2

C $462cm^2$ **D** $924cm^2$

Q20. A right triangle with sides 3cm, 4cm and 5cm is rotated about the side of 3cm to form a cone. The volume of the cone so formed is: **1 Mark**

A $12\pi cm^3$ **B** $15\pi cm^3$ **C** $16\pi cm^3$ **D** $20\pi cm^3$

Q21. Mark the correct alternative in the following: **1 Mark**

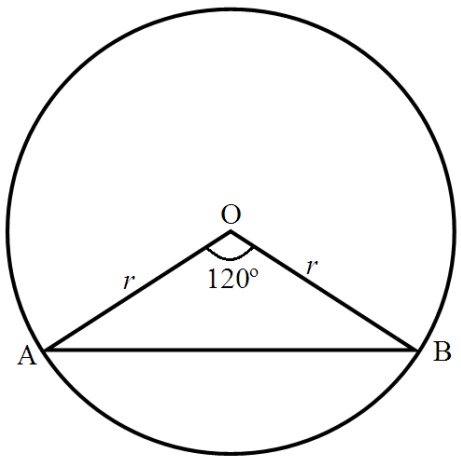
If 18^{th} and 11^{th} term of an A.P. are in the ratio 3 : 2, then its 21^{st} and 5^{th} terms are in the ratio:

A 3 : 2 **B** 3 : 1 **C** 1 : 3 **D** 2 : 3

Q22. The area of the largest triangle that can be inscribed in a semi-circle of radius r, is: **1 Mark**

A r^2 **B** $2r^2$ **C** r^3 **D** $2r^3$

Q23. In the following figure, the area of segment ACB is: **1 Mark**



C

A $\left(\frac{\pi}{3} - \frac{\sqrt{3}}{2}\right)r^2$ **B** $\left(\frac{\pi}{3} + \frac{\sqrt{3}}{2}\right)r^2$

C $\left(\frac{\pi}{3} - \frac{\sqrt{2}}{3}\right)r^2$ **D** None of these

Q24. Choose the correct answer from the given four options: **1 Mark**

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.

Q25. The sum of first n terms of an AP is $(4n^2 + 2n)$. The nth term of this AP is: **1 Mark**

A (6n - 2) **B** (7n - 3) **C** (8n - 2) **D** (8n + 2)

Q26. A cylindrical pencil sharpened at one edge is the combination of: **1 Mark**

A A hemisphere and a cylinder **B** A cone and a hemisphere

C A frustum of a cone and a cylinder **D** A cone and a cylinder

Q27. If 4, x_1, x_2, x_3, 28 are in AP then x_3 = ? **1 Mark**

A 19 **B** 23 **C** 22 **D** Cannot be determined

Q28. The 7th term of an AP is -1 its 16th term is 17. The nth term of the AP is: **1 Mark**

A (3n + 8) **B** (4n - 7) **C** (15 - 2n) **D** (2n - 15)

Q29. A cylindrical vessel 32cm high and 18cm as the radius of the base, is filled with sand. This bucket is emptied on the ground and a conical heap of sand is formed. If the height of the conical heap is 24cm, the radius of its base is: **1 Mark**

A 12cm **B** 24cm **C** 36cm **D** 48cm

Q30. The surface areas of two spheres are in e ratio 16: 9. The ratio o their volumes is: **1 Mark**

A 64 : 27 **B** 16 : 9 **C** 4 : 3 **D** $16^3 : 9^3$

Q31. $S_n - S_n - 1$ = **1 Mark**

A $a_n + 1$ **B** None of these **C** $a_n - 1$ **D** a_n

Q32. An AP 5, 12, 19, ...has 50 term. Its last term is: **1 Mark**

A 343 **B** 353 **C** 348 **D** 362

Q33. If a, b and c are in A.P. then the relation between them is given by: **1 Mark**

A 2c = a + b **B** 2a = b + c **C** a = b + c **D** 2b = a + c

Q34. Identify which among the pieces given below will not be requires to complete the square: **1 Mark**

A K **B** H **C** J **D** I

Q35. The ratio of the areas of a circle and an equilateral triangle whose diameter and a side are respectively equal, is: **1 Mark**

A 1. $\pi : \sqrt{2}$ **B** $\pi : \sqrt{3}$

2.

3.

C $\sqrt{3} : \pi$ **D** $\sqrt{2} : \pi$

Q36. Mark the correct alternative in the following: **1 Mark**

If S_r denotes the sum of the first r terms of an A.P. Then, $S_{3n} : (S_{2n} - S_n)$ is:

A n **B** 3n **C** 3 **D** None of these.

Q37. The nth term of an A.P. is 7 - 4n, then its common difference is: **1 Mark**

A -4 **B** -3 **C** 3 **D** 4

Q38. The volume of a wall, 5 times as high as it is broad and 8 times as long as it is high, is $128m^3$. The breadth of the wall is: **1 Mark**

A 30cm **B** 40cm **C** 22.5cm **D** 25cm

Q39. Mark the correct alternative in the following: **1 Mark**

If the first, second and last term of an A.P, are a, b and 2a respectively, its sum is

A $\frac{ab}{2(b-a)}$ **B** $\frac{ab}{(b-a)}$

C $\frac{3ab}{2(b-a)}$ **D** None of these.

Q40. Which term of the AP 72, 63 54, ...is 0? **1 Mark**

A 8^{th} **B** 9^{th} **C** 10^{th} **D** 11^{th}

Q41. The volumes of two spheres are in the ratio 64 : 27. The ratio of their surface areas is: **1 Mark**

A 1 : 2 **B** 2 : 3 **C** 9 : 16 **D** 16 : 9

Q42. Tick the correct answer in the following: **1 Mark**

Area of a sector of angle p (in degrees) of a circle with radius R is,

A $\frac{p}{180} \times 2\pi R$ **B** $\frac{p}{180} \times 2\pi R^2$

C $\frac{p}{360} \times 2\pi R$ **D** $\frac{p}{720} \times 2\pi R^2$

Q43. Water flows at the rate of 10 metre per minute from a cylindrical pipe 5mm in diameter. How long will it take to fill up a conical vessel whose diameter at the base is 40cm and depth 24cm? **1 Mark**

A 48 minutes 15 sec **B** 51 minutes 12 sec **C** 52 minutes 1 sec **D** 55 minutes

Q44. Mark the correct alternative in the following: **1 Mark**

If the sum of P terms of an A.P. is q and the sum of q terms is p, then the sum of p + q terms will be:

0

A 0 **B** p - q **C** p + q **D** -(p + q)

Q45. The volumes of two cubes are in the ratio 1 : 27. The ratio of their surface area is: **1 Mark**

A 1 : 3 **B** 1 : 8 **C** 1 : 9 **D** 1 : 18

Q46. A medicine capsule is in the shape of a cylinder of diameter 0.5cm with a hemisphere tucked at each end. The length of the entire capsule is 2cm. The capacity of the capsule is: **1 Mark**

A 0.33 cm^2 **B** 0.34 cm^2 **C** 0.35 cm^2 **D** 0.36 cm^2

Q47. The area of the largest triangle that can be inscribed in a semi-circle of radius r is: **1 Mark**

A 2r **B** r^2 **C** r **D** $\sqrt{r}$

Q48. A sphere of diameter 18cm is dropped into a cylindrical vessel of diameter 36cm, partly filled with water. If the sphere is completely submerged, then the water level rises by: **1 Mark**

A 3cm **B** 4cm **C** 5cm **D** 6cm

Q49. 12 spheres of the same size are made from melting a solid cylinder of 16cm diameter and 2cm height. The diameter of each sphere is: **1 Mark**

A $\sqrt{3}cm$ **B** 2cm **C** 3cm **D** 4cm

Q50. The curved surface area of a cylinder is $264m^2$ and its volume is $924m^3$. The ratio of its diameter to its height is: **1 Mark**

A 3 : 7 **B** 7 : 3 **C** 6 : 7 **D** 7 : 6

Q51. Mark the correct alternative in the following: **1 Mark**

$\text{If } \frac{5+9+13+,\ldots \text{ to n terms}}{7+9+11+,\ldots..\text{to } (n+1) \text{ term}} = \frac{17}{16}, \text{then n} =$

A 8 **B** 7 **C** 10 **D** 11

Q52. Choose the correct answer from the given four options: **1 Mark**

In an AP, if a = 3.5, d = 0, n = 101, then a_n will be:

A 0 **B** 3.5 **C** 103.5 **D** 104.5

Q53. A spherical ball of radius r is melted to make 8 new identical balls each of radius r_1. Then $r : r_1$ = **1 Mark**

A 2 : 1 **B** 1 : 2 **C** 4 : 1 **D** 1 : 4

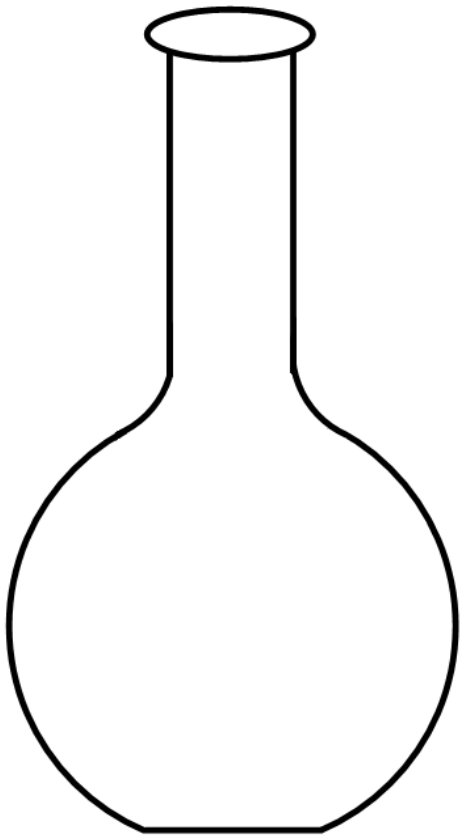
Q54. The total surface area of a hemisphere of radius 7cm is: **1 Mark**

A $(588\pi)\text{cm}^2$ **B** $(392\pi)\text{cm}^2$ **C** $(147\pi)\text{cm}^2$ **D** $(98\pi)\text{cm}^2$

Q55. If two solid-hemispheres of same base radius r are joined together along their bases, then curved surface area of this new solid is: **1 Mark**

A $4\pi r^2$ **B** $6\pi r^2$ **C** $3\pi r^2$ **D** $8\pi r^2$

Q56. A surahi is a combination of: **1 Mark**



Surahi

A A sphere and a cylinder. **B** A hemisphere and a cylinder.

C A cylinder and a cone. **D** Two hemispheres.

Q57. Mark the correct alternative in the following: **1 Mark**

If the n^{th} term of an A.P. is 2n + 1, then the sum of first n terms of the A.P. is:

A n(n - 2) **B** n(n + 2) **C** n(n + 1) **D** n(n - 1)

Q58. The curved surface are of a cylinder is 1760cm^2 and its base radius is 14cm. The height of the cylinder is: **1 Mark**

A 10cm **B** 15cm **C** 20cm **D** 40cm

Q59. If the radii of the circular ends of a bucket of height 40cm are of lengths 35cm and 14cm, then the volume of the bucket in cubic centimeters, is: **1 Mark**

A 60060 **B** 80080 **C** 70040 **D** 80160

Q60. If four times the sum of the areas of two circular faces of a cylinder of height 8cm is equal to twice the curve surface area, then diameter of the cylinder is: **1 Mark**

A 4cm **B** 8cm **C** 2cm **D** 6cm

Q61. The radii of the base of a cylinder and a cone are in the ratio 3 : 4. If their heights are in the ratio 2 : 3, the ratio between their volumes is: **1 Mark**

A c **B** 3 : 4 **C** 8 : 9 **D** 4 : 3

Q62. **Directions:** In the following questions, a statement of assertion (A) is followed by a statement of reason (R).Mark the correct choice as: **1 Mark**

Assertion: No.of spherical balls that can be made out of a solid cube of lead whose edge is 44cm, each ball being 4cm. in diameter, is 2541

Reason: $\text{Number of balls} = \frac{\text{Volume of one ball}}{\text{Volume of lead}}$

A Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

B Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

C Assertion (A) is true but reason (R) is false.

D Assertion (A) is false but reason (R) is true.

Q63. The diameters of the top and the bottom portions of a bucket are 42cm and 28cm respectively. If the height of the bucket is 24cm, then the cost of painting its outer surface at the rate of 50 paise/ cm^2 is: **1 Mark**

A Rs. 1582.50 **B** Rs. 1724.50 **C** Rs. 1683 **D** Rs. 1642

Q64. If a chord of a circle of radius 28cm makes an angle of 90° at the centre, then the area of the major segment is: **1 Mark**

A 392cm^2 **B** 1456cm^2 **C** 1848cm^2 **D** 2240cm^2

Q65. Mark the correct alternative in the following: **1 Mark**

It the sums of n terms of two arithmetic progressions are in the ratio $\frac{3n+5}{5n-7}$, then their n^{th} terms are in the ratio.

A $\frac{3n-1}{5n-1}$ **B** $\frac{3n+1}{5n+1}$
C $\frac{5n+1}{3n+1}$ **D** $\frac{5n-1}{3n-1}$

Q66. If the radius of the base of a right circular cylinder is halved, keeping the height the same, then the ratio of the volume of the cylinder thus obtained to the volume of original cylinder is: **1 Mark**

A 1 : 2 **B** 2 : 1 **C** 1 : 4 **D** 4 : 1

Q67. In a circle of radius 14cm. an arc subtends an angle of 120° at the centre. If $\sqrt{3} = 1.73$ then the area of the segment of the circle is: **1 Mark**

A 120.56cm^2 **B** 124.63cm^2 **C** 118.24cm^2 **D** 130.57cm^2

Q68. The volume of a hemisphere is 19404cm^3. The total surface area of the hemisphere is: **1 Mark**

A 4158cm^2 **B** 16632cm^2 **C** 8316cm^2 **D** 3696cm^2

Q69. The radii of two concentric circles are 19 cm and 16 cm respectively. The area of the ring enclosed by these circles is: **1 Mark**

A 320cm^2 **B** 330cm^2 **C** 332cm^2 **D** 340cm^2

Q70. The area of a sector whose perimeter is four times its radius r units, is: **1 Mark**

A $\frac{r^2}{4}$sq. units **B** $2r^2$sq. units
C r^2sq. units **D** $\frac{r^2}{2}$sq. units

Q71. The area of a sector of a circle with radius r, making an angle of x° at the centre is: **1 Mark**

1. $\frac{x}{180} \times 2\pi r$
2. $\frac{x}{180} \times \pi r^2$
3. $\frac{x}{360} \times 2\pi r$
4. $\frac{x}{360} \times \pi r^2$

Q72. Mark the correct alternative in the following: **1 Mark**

The common difference of the A.P. is

is

A -1 **B** 1 **C** q **D** 2q

Q73. The sum of length, breadth and height of a cuboid is 19cm and its diagonal is $\sqrt[5]{5}$cm. Its surface area is **1 Mark**

A 361cm^2 **B** 125cm^2 **C** 236cm^2 **D** 486cm^2

Q74. If the first term of an A.P. is a and nth term is b, then its common difference is: **1 Mark**

A $\frac{b-a}{n-1}$ **B** $\frac{b-a}{n}$
C $\frac{b-a}{n+1}$ **D** $\frac{b+a}{n-1}$

Q75. The ratio between the volume of two spheres is 8 : 27. What is the ratio between their surface areas? **1 Mark**

A 2 : 3 **B** 4 : 5 **C** 5 : 6 **D** 4 : 9

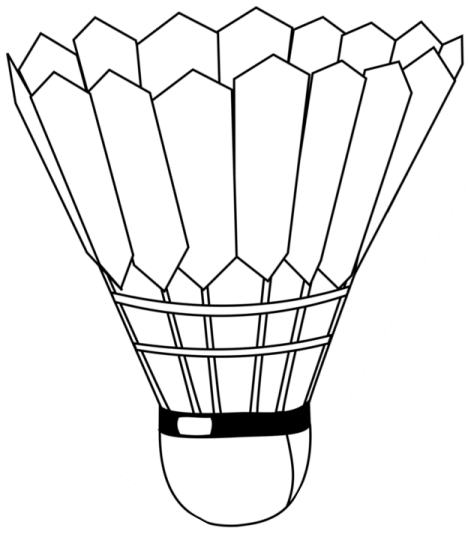
Q76. If he area of a sector of a circle is $\frac{7}{20}$ of the area of the circle, then the sector angle is equal to: **1 Mark**

A 110° **B** 130° **C** 100° **D** 126°

Q77. The area of a circle is 220cm^2. The area of ta square inscribed in it is **1 Mark**

A 49cm^2 **B** 70cm^2 **C** 140cm^2 **D** 150cm^2

Q78. A shuttlecock used for playing badminton is the combination of: **1 Mark**



A Cylinder and a hemisphere. **B** Frustum of a cone and a hemispher.
C A cone and a hemisphere. **D** A cylinder and a spher.

Q79. A sphere of radius 6cm is dropped into a cylindrical vessel partly filled with water. The radius of the vessel is 8cm. If the sphere is submerged completely, then the surface of the water rises by: **1 Mark**

A 4.5cm **B** 3cm **C** 4cm **D** 2cm

Q80. **1 Mark**

A rectangular sheet of paper 40cm × 22cm, is rolled to form a hollow cylinder of height 40cm. The radius of the cylinder (in cm) is:

A 3.5 **B** 7 **C** $\frac{80}{7}$ **D** 5

Q81. How many terms of the AP 3, 7, 11, 15, ... will make the sum 406? **1 Mark**

A 10 **B** 12 **C** 14 **D** 20

Q82. A solid consists of a circular cylinder surmounted by a right circular cone. The height of the cone is h. If the total height of the solid is 3 times the volume of the cone, then the height of the cylinder is: **1 Mark**

A $2h$ **B** $\frac{3h}{2}$ **C** $\frac{h}{2}$ **D** $\frac{2h}{2}$

Q83. A cubical block of side 7cm is surmounted by a hemisphere. The greatest diameter of the hemisphere is: **1 Mark**

A 14cm **B** 10.5cm **C** 3.5cm **D** 7cm

Q84. The ratio between the radius of the base and the height of a cylinder is 2 : 3. If its volume is 1617cm^3, the total surface area of the cylinder is: **1 Mark**

A 308cm^2 **B** 462cm^2 **C** 540cm^2 **D** 770cm^2

Q85. Mark the correct alternative in the following: **1 Mark**

If the sum of three consecutive terms of an increasing A.P. is 51 and the product of the first and third of these terms is 273, then the third term is:

A 13 **B** 9 **C** 21 **D** 17

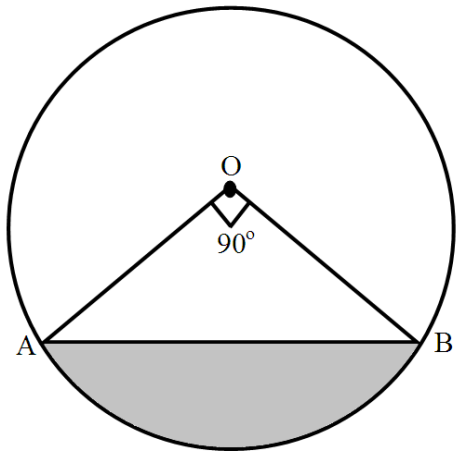
Q86. A hollow sphere of internal and external diameters 4cm and 8cm respectively is melted into a cone of base diameter 8cm. The height of the cone is: **1 Mark**

A 12cm **B** 14cm **C** 15cm **D** 18cm

Q87. What is 20th term from the end of the AP 3, 8, 13, ..., 253? **1 Mark**

A 163 **B** 158 **C** 153 **D** 148

Q88. In the following figure, the shaded area is: **1 Mark**



A $50(\pi - 2)\text{cm}^2$ **B** $25(\pi - 2)\text{cm}^2$
C $25(\pi + 2)\text{cm}^2$ **D** $5(\pi - 2)\text{cm}^2$

Q89. The sum of first n term of an AP is ($5n^2$ - n^2). The common difference of the AP is: **1 Mark**

A (5 - 2n) **B** (6 - 2n) **C** (2n - 5) **D** (2n - 6)

Q90. The ratio of lateral surface area to the total surface area of a cylinder with base diameter 1.6m and height 20cm is: **1 Mark**

A 1 : 7 **B** 1 : 5 **C** 7 : 1 **D** 8 : 1

Q91. The sum of first n term of an AP is ($3n^2$ + 6n). The common difference of the AP is: **1 Mark**

A 6 **B** 9 **C** 15 **D** -3

Q92. The length of an arc of the sector of angle θ° of a circle with radius R is: **1 Mark**

A $\frac{2\pi R\theta}{180}$ **B** $\frac{2\pi R\theta}{360}$
C $\frac{\pi R^2\theta}{180}$ **D** $\frac{\pi R^2\theta}{360}$

Q93. If k, 2k - 1 and 2k + 1 are three consecutive terms of an A.P. the value of k is: **1 Mark**

A -3 **B** -2 **C** 6 **D** 3

Q94. Volumes of two spheres are in the ratio 64 : 27. The ratio of their surface areas is: **1 Mark**

A 3 : 4 **B** 4 : 3 **C** 9 : 16 **D** 16 : 9

Q95. If an denotes the nth term of the AP 3, 8, 13, 18, ... then what is the value of (a_{30} - a_{20})? **1 Mark**

A 40 **B** 36 **C** 50 **D** 56

Q96. If the area of a sector of a circle is $\frac{5}{18}$ of the area of the circle, then the sector angle is equal to: **1 Mark**

A 60º **B** 90º **C** 100º **D** 120º

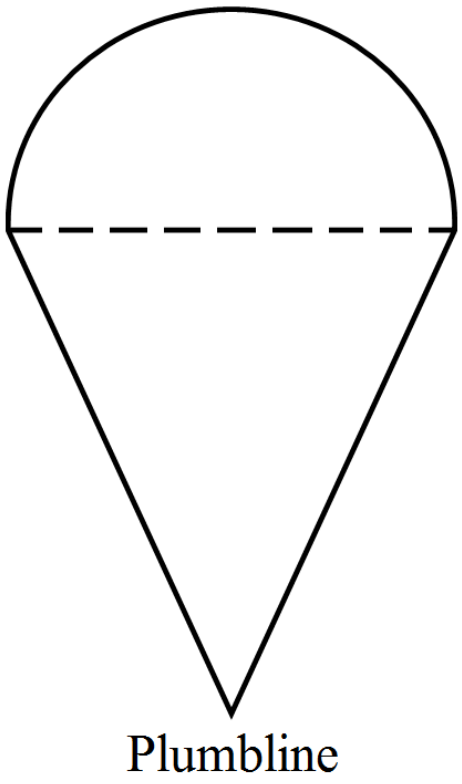
Q97. If the radius of the base of a right circular cylinder is halved, keeping the height the same, then the ratio of the volume of the cylinder thus obtained to the volume of orginal cylinder is: **1 Mark**

A 1 : 2 **B** 2 : 1 **C** 1 : 4 **D** 4 : 1

Q98. The volume of the greatest sphere that can be cut off from a cylindrical log of wood of base radius 1cm and height 5cm is: **1 Mark**

A $\frac{4}{3}\pi$ **B** $\frac{10}{3}\pi$ **C** 5π **D** $\frac{20}{3}\pi$

Q99. A plumb line (sahul) is the combination of: **1 Mark**



Plumbline

A A hemisphere and a cone. **B** A cylinder and a cone.

C A cylinder and frustum of a con. **D** A cylinder and a sphere.

Q100. The radius of the base of a cone is 5cm and its height is 12cm. Its curved surface area is: **1 Mark**

A $60\pi\text{cm}^2$ **B** $65\pi\text{cm}^2$

C $30\pi\text{cm}^2$ **D** None of these