RK VISION ACADEMY

NEET | IIT – JEE | FOUNDATIONS

MATRIC PRACTICE PAPER (2024)

(Mathematics)

Grade: X
Chapter: Mensuration

Marks: 50 marks
Time: 90 minutes

SECTION A   (6x1=6)

Choose the correct option.

1. A child reshapes a cone made up of clay of height 24cm and radius 6cm into a sphere, then the radius of sphere is:
(a) 24cm   (b) 12cm   (c) 6cm   (d) 48cm

2. A spherical ball of radius r_1 units is melted to make 8 new identical balls each of radius r_2 units. Then $r_1:r_2$ is:
(a) 2:1   (b) 1:2   (c) 4:1   (d) 1:4

3. The height of a right circular cone whose radius is 5cm and slant height is 13cm will be
(a) 12cm   (b) 10cm   (c) 13cm   (d) 5cm

4. If two solid hemispheres of same base radius 'r' units are joined together along their bases, then curved surface area of this new solid is:
(a) $4\pi r^2$ sq.units   (b) $6\pi r^2$ sq.units   (c) $3\pi r^2$ sq.units   (d) $8\pi r^2$ sq.units

5. If the radius of the cylinder is doubled, the new volume of the cylinder will be _____ times the original volume.
(a) Same   (b) 3   (c) 4   (d) 2

6. The ratio of the volume of the cylinder, a cone and a sphere, if each has the same diameter and same height is:
(a) 1:2:3   (b) 2:1:3   (c) 1:3:2   (d) 3:1:2

SECTION B   (4x2=8)

Answer **any 4** questions. Question No. **11** is **compulsory**.

7. The radius of a conical tent is 7m and height is 24m. Calculate the length of the canvas used to make the tent if the width of the rectangular canvas is 4m.

8. If the ratio of radii of two spheres is 4:7, find the ratio of their volumes.

9. The radius of a spherical balloon increases from 12cm to 16cm as air being pumped into it. Find the ratio of the surface area of the balloons in the two cases.

10. The volumes of two cones of the same base radius are 3600cm^3 and 5040cm^3. Find the ratio of their lengths.

11. If the base area of a hemispherical solid is 1386 sq.metres, then find its total surface area.

SECTION C   (4x5=20)

Answer **any 4** questions. Question No. **16** is **compulsory**.

12. A cylindrical glass with diameter 20cm has water to a height of 9cm. A small non-hollow cylindrical metal of radius 5cm and height 4cm is immersed in it completely. Calculate the rise of water in the glass.

13. A container open at the top is in the form of frustrum of a cone of height 16cm with radii of its lower and upper ends are 8cm and 20cm respectively. Find the cost of milk which can completely fill the container at the rate of Rs.40 per litre.

14. Nathan, an engineering student was asked to make a model shaped like a cylinder with two cones attached at its two ends. The length of the model is 12cm and its diameter is 3cm. If each cone has a height of 2cm, find the volume of the model that Nathan made.

15. The radius and height of a cylinder are in the ratio 5:7 and its curved surface area is 5500 sq.cm. Find its radius and height.

16. Arul has to make arrangements for the accommodation of 150 persons for his family function. For this purpose, he plans to build a tent which is in the shape of cylinder surmounted by a cone. Each person requires 4 sq.m of the space on ground and 40 cu.metre of air to breathe. Find the height of the conical part of the tent if the height of cylindrical part is 8m.

SECTION D   (2x8=16)

Answer **all** the questions.

17. Take a point which is 11 cm away from the centre of the circle of radius 4cm and draw two tangents to the circle from the point.

18. Varshika drew 6 circles with different sizes. Draw a graph for the relationship between the diameter and circumference (approximately related) of each circles as shown in the table and use it to find the circumference of a circle when its diameter is 6cm.

Diameter (x) cm	1	2	3	4	5
Circumference (y) cm	3.1	6.2	9.3	12.4	15.5