



# RK VISION ACADEMY

NEET | IIT – JEE | FOUNDATION

CBSE PRACTICE PAPER(2024)

(Mathematics)

Grade : X  
marks

Marks: 40

Chapter: MENSURATION SET-1  
minutes

Time: 90

## SECTION A

(This section comprises of Multiple-choice questions (MCQ) of 1 mark each.)

- If a marble of radius 2.1 cm is put into a cylindrical cup full of water of radius 5cm and height 6 cm, then how much water flows out of the cylindrical cup?  
(A)  $38.8 \text{ cm}^3$                       (B)  $55.4 \text{ cm}^3$                       (C)  $19.4 \text{ cm}^3$                       (D)  $471.4 \text{ cm}^3$
- The volume of the largest right circular cone that can be cut out from a cube of edge 4.2 cm is  
(A)  $9.7 \text{ cm}^3$                       (B)  $77.6 \text{ cm}^3$                       (C)  $58.2 \text{ cm}^3$                       (D)  $19.4 \text{ cm}^3$
- A wire is in the shape of a circle of radius 21 cm. It is bent in the form of a square. The side of the square is  
( take  $\pi = 22/7$  )  
(a) 22 cm                      (b) 33 cm                      (c) 44 cm                      (d) 66 cm
- A cylindrical vessel 32 cm high and 18 cm 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 24 cm, then the radius of its base is  
(a) 30 cm                      (b) 36 cm                      (c) 34 cm                      (d) 35 cm
- If a cylinder is filled with water and spherical ball of radius r is dropped into the cylinder, then the quantity of water spread out, is  
(a)  $2 \times$  volume of sphere                      (b) volume of sphere                      (c)  $3 \times$  volume of sphere                      (d) None of the above
- A cylindrical vessel 32 cm high and 18 cm 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 24 cm, then the radius of its base is  
(a) 30 cm                      (b) 36 cm                      (c) 34 cm                      (d) 35 cm
- In a right circular cone, the cross-section made by a plane parallel to the base is  
(a) sphere                      (b) hemisphere                      (c) circle                      (d) semi-circle
- 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.
- The shape of a glass (tumbler) is usually in the form of

- (A) a cone                      (B) frustum of a cone                      (C) a cylinder                      (D) a sphere

- 10 A metallic spherical shell of internal and external diameters 4 cm and 8 cm respectively is melted and recast into the form a cone of base diameter 8cm. The height of the cone is  
(A) 12cm                      (B) 14cm                      (C) 15cm                      (D) 18cm

### SECTION B

**(This section comprises of very short answer type-questions (VSA) of 2 marks each)**

- 11 A conical tent is to accommodate 77 persons. Each person must have  $4\text{m}^3$  of air to breathe. Given, the radius of the tent as 7 m. Find the height of the tent.
- 12 A canal is 300 cm wide and 120 cm deep. The water in the canal is flowing with a speed of 20 km/h. How much area will it irrigate in 20 minutes if 8 cm of standing water is desired?
- 13 A cone of radius 4 cm is divided into two parts by drawing a plane through the mid point of its axis and parallel to its base. Compare the volumes of the two parts

### SECTION C

**(This section comprises of short answer type questions (SA) of 3 marks each)**

- 14 How many shots each having diameter 3 cm can be made from a cuboidal lead solid of dimensions  $9\text{cm} \times 11\text{cm} \times 12\text{cm}$ ?
- 15 A bucket is in the form of a frustum of a cone and holds 28.490 litres of water. The radii of the top and bottom are 28 cm and 21 cm, respectively. Find the height of the bucket.
- 16 A cone of radius 8 cm and height 12 cm is divided into two parts by a plane through the mid-point of its axis parallel to its base. Find the ratio of the volumes of two parts.

### SECTION D

**(This section comprises of long answer-type questions (LA) of 5 marks each)**

- 17 The height of a cone is 40 cm. A small cone is cut at the top by a plane parallel to the base. If the volume of the small cone be  $\frac{1}{27}$  of the volume of the given cone, at what height above the base is the sections made?
- 18 A rocket is in the form of a right circular cylinder closed at the lower end and surmounted by a cone with the same radius as that of the cylinder. The diameter and height of the cylinder are 6 cm and 12 cm, respectively. If the slant height of the conical portion is 5 cm, then find the total surface area and volume of the rocket, [take  $\pi = 3.14$ ]
- 19 If a hollow cube of internal edge 22 cm is filled with spherical marbles of diameter 0.5 cm and it is assumed that  $\frac{1}{8}$  space of the cube remains unfilled. Then, find the number of marbles that the cube can accommodate.