

Mensuration

Case study

2. For a magic show a magician has prepared his magical tools. In his magical tools, there is a magic tool where some cubical boxes are placed in a cylindrical box and some cylindrical boxes are placed in a cuboid-shaped box. The edge length of each cube-shaped box is 5.5 cm, the radius and height of each cylindrical box are respectively 3.5 cm and 10 cm. There is a label printed on each cylindrical box leaving a boarder of 2.5 cm from top and bottom around the box. The height of the cuboidal box is twice the height of each cylindrical box. The height and breadth of the cuboidal box are equal and length is one and half times the height.

Based on the above information answer the following questions:

- (i) Find the amount of spaces inside the each three different shaped boxes.
- (ii) Find the number of cubic boxes can be placed in one cylindrical box.
- (iii) Find the number of cylindrical boxes can be placed in one large cuboidal box.
- (iv) Find the area of the label on each cylindrical box.