Mathematics

Practice Test Paper 6

(Chapter 12: Surface Areas and Volumes)

Class X | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

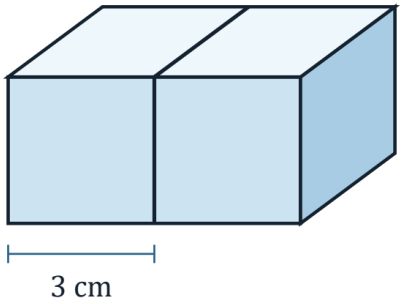
General Instructions

1. All 13 questions are compulsory. The paper has four sections: A, B, C and D.
2. Section A - 5 marks; Section B - 8 marks; Section C - 9 marks; Section D - 3 marks.
3. Choose one correct option in Section A. Show the necessary steps and reasoning in Sections B, C and D.
4. Use $\pi = 22/7$ unless stated otherwise. Use of calculators is not allowed.

SECTION A

(5 questions × 1 mark = 5 marks)

1. The two cubes shown, each of edge 3 cm, are joined face to face. Their combined volume is:



(A) 54 cm^3 (B) 27 cm^3
(C) 36 cm^3 (D) 81 cm^3

2. A cone with base area 24 cm^2 and height 6 cm is attached to another solid. The volume added is:

(A) 144 cm^3 (B) 72 cm^3
(C) 48 cm^3 (D) 24 cm^3

3. A hemisphere of radius 4 cm is removed from a block. The circular opening has area:

(A) 8π cm^2 (B) 16π cm^2
(C) 32π cm^2 (D) 64π cm^2

4. The cylindrical part of a capsule has length 8 cm and radius 2.5 cm. The total capsule length is:

(A) 10.5 cm (B) 11 cm
(C) 15.5 cm (D) 13 cm

5. A hollow combined vessel has capacity 3500 cm^3. This equals:

(A) 3.5 litres (B) 35 litres

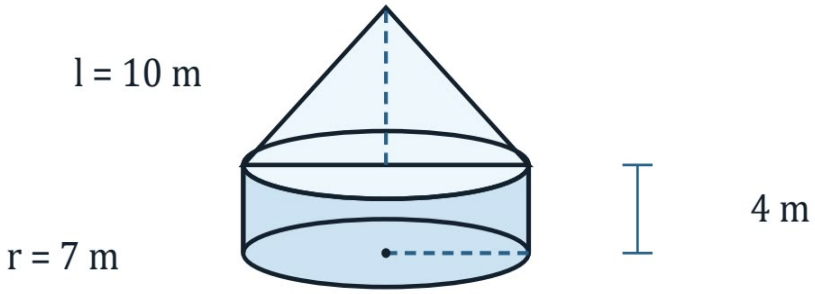
(C) 0.35 litre (D) 350 litres

SECTION B

(4 questions × 2 marks = 8 marks)

6. Two cones of radius 3 cm, with heights 4 cm and 8 cm, are joined at their circular bases. Find the combined volume in terms of π.

7. The floorless tent shown has radius 7 m, wall height 4 m and roof slant height 10 m. Find the canvas area. Ignore openings and seams.



8. A hemisphere of radius 5 cm is carved out of a cuboid measuring 12 cm × 10 cm × 6 cm. Find the volume remaining in terms of π.

9. A solid consists of a cylinder of radius 2 cm and height 7 cm topped by a cone of height 3 cm. Find its volume in terms of π.

SECTION C

(3 questions × 3 marks = 9 marks)

10. A toy consists of a cone on a hemisphere of common radius 3.5 cm. The total height is 15.5 cm. Find the total external surface area.

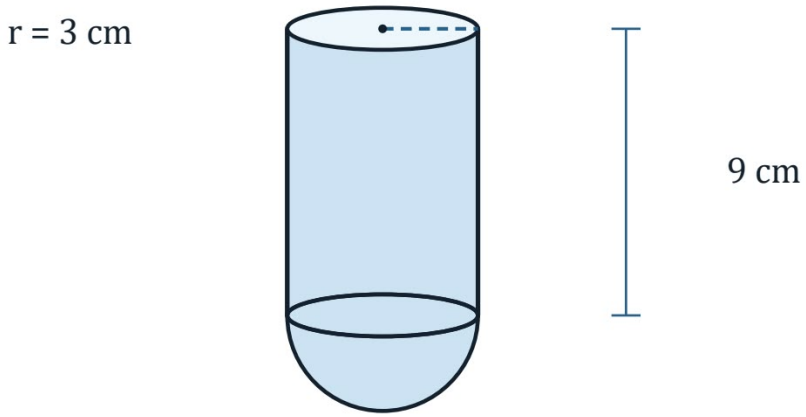
11. Two solid cylinders are joined coaxially: the lower one has radius 7 cm and height 10 cm, and the upper one radius 3.5 cm and height 6 cm. Find their combined external area, including the bottom.

12. A cuboid-shaped room is 10 m long, 6 m wide and 4 m high. Its roof encloses a half-cylinder of radius 3 m and length 10 m. Find the total interior volume in terms of π.

SECTION D

(Application Based Question - 3 marks)

13. The open vessel shown consists of a cylinder of internal height 9 cm above a hemispherical bottom of radius 3 cm. Its wall thickness is negligible. Give capacities in terms of π.



(i) Find the total internal depth.

(ii) Find the hemispherical capacity.

(iii) Find the total capacity.