SHIKSHA CLASSES

Sub. : Maths | **Question Paper** | **Marks : 20**

Std. : VIIIth - S.B. | **16. Surface area and Volume** | **Time : 45 min.**

Q.1 : A) Select the most appropriate Alternative. 02

1) If l = length, b = breadth, h = height, then total surface area of cuboid is.

a) $l$bh b) $2(l + b)h$

c) $l + b + h$ d) $2(lb + bh + hl)$

2) The height of cylinder is 21 cm and the radius of its base is 5 cm, then its curved surface area is _____.

a) 660 sq cm b) 660 cu cm c) 66 sq cm d) 66 cu cm

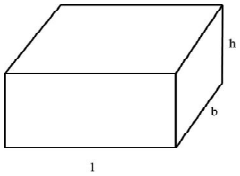
: B) Solve the following. 01

1) Find total surface area of cube of side 6 cm.

Q.2 : A) Solve any one of the following. (Activity) 02

1) Find how many litre of water will a cuboidal fish tank contain if its length, breadth and height are 1 m, 40 cm and 50 cm respectively.

→ The water contained in the tank is equal to volume of the tank.



Length of tank = 1m = 100cm, breadth = 40 cm,

height = 50cm.

∴ Volume of the tank = $l \times b \times h$

= 100 × ☐ × ☐ = 200000cc,

Volume of water in the tank = 200000 cc = $\frac{200000}{\square}$ = 200 litre

(∵ ☐cc = 1l)

∴ Tank will contain 200 litre of water

2) Height of a cylindrical drum is 56 cm. Find the radius of the drum if the capacity of that drum

is 70.4 litre. $\left(\pi = \frac{22}{7}\right)$

→ Let the radius of ylindrical drum be = r

capacity of drum = volume of drum = 70.4 × 1000 cc

1 litre = 1000 ml

∴ 70.4 litre = 70400 ml

∴ volume of water = $\pi r^2 h = 70400$

$\therefore r^2 = \frac{70400}{\pi h} = \frac{70400 \times 7}{\square \times \square}$

$= \frac{70400}{22 \times \square} = \frac{\square}{22} = 400$

∴ r = 20, ∴ radius of the drum is 20cm.

: **B) Solve any one of the following.** 02

1) A cuboid shaped soap bar has volume 150 cc. Find its thickness if its length is 10 cm and breadth is 5 cm.

2) Find the volume of the cylinder if height (h) and radius of the base (r) are as given below.
r =10. 5 cm, h = 8 cm.

Q.3 : A) Solve any one of the following.(Activity) 03

1) If 5 litre molten mixture of khoa and sugar is poured in a tray it fills to its full capacity. Find the length of the tray if its breadth is 40 cm and height is 2.5 cm.
To solve the example fill the empty boxes with suitable numbers.

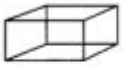
Step i) : Capacity of tray = 5 litre = ☐ cc (∵ 1 litre = 1000 cc)

Step ii) : Volume of mixture = ☐ cc

Step iii) Volume of rectangular tray = volume of mixture $l \times b \times h =$ ☐ cc

length × 40 × 2.5 = ☐ cc, ∴ length = $\frac{\square}{100} = 50$ cm

2) Leonard Euler, a great mathematician, at a very young age discovered an interesting formula regarding the faces, vertices and edges of solid figures. Count and write the faces, vertices and edges of the following figures and complete the table. From the table verify Euler's formula, F + V = E + 2.

Name	Cube	Cuboid	Triangular Prism	Triangular pyramid	Pentagonal pyramid	Hexagonal prism
Shapes						
Faces (F)	6					8
Vertices (V)	8					12
Edges (E)		12			10	

: B) Solve any one of the following. 03

1) Find the volume of the cylinder if the circumference of the cylinder is 132 cm and height is 25 cm.

2) How many bricks of length 25 cm, breadth 15 cm and height 10 cm are required to build a wall of length 6 m, height 2.5 m and breadth 0.5 m?

Q.4 : Solve any one of the following. 04

1) A rectangular sheet of paper 44 cm × 18 cm is rolled along its length and a cylinder is formed. Find the volume of the cylinder. $\left(\pi = \frac{22}{7}\right)$

2) Find the area of the sheet required to make a cylindrical container, which is open at one side and whose diameter is 28 cm and height 20 cm. Find the approximate area of the sheet required to make a lid of height 2 cm for this container.

Q.5 : Solve any one of the following. 03

1) The ratio between the curved surface area and the total surface area of a right circular cylinder is 1 : 2. Find the ratio between the height and radius of the cylinder.

2) The length and height of a cuboidal warehouse is 6m, 4m and 4m respectively. How many cube shaped boxes of side 40 cm will fill the warehouse completely ?

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