Grade VII
Lesson: 15 VIS UALIS ING SOLID SHAPES (osw)

Objective Type Questions
I. Multiple choice questions

1. The name of given solid shape is

a) Cube
b) Cone
C) Cuboid
d) Pyramid
2. The name of the solid shape is

a) Cylinder
b) Sphere
c) Cube
d) None of these
3. Two cubes are places side by side. If the edge of cube is 2 cm , the length of resulting cuboid is
a) 2 cm
b) 6 cm
c) 4 cm
d) 1 cm
4. The shadow of a cone, when seen under the lamp of an overfead projector is
a) Square
6) Rectangle
c) Circle
d) Triangle
7) A square pyramid fas
a) Four faces
0
b) Three faces
c) Five faces
d) $\mathfrak{N}$ one of these
8) A cylinder has
a) 4 Vertices
9) 3 vertices
c) No vertex
d) 2 vertices
10) How many edges are there in a cuboid?
a) 3
b) 4
c) 5
d) 12

| 1) $c$ | 2) $b$ | $3) c$ | 4) $d$ | 5) $c$ | 6) $c$ | 7) $d$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## II. Multiple choice questions

1. The name of the given solid figure is

a) triangular pyramid
6) rectangular pyramid
c) rectangular prism
d) triangular prism
7) the name of the given sold figure is rectangle pyramid
2. The name of a the given solid figure is

a) triangular pyramid 6) rectangular prism c) triangular prism d) rectangular pyramid
c) The name of the given solid figure is triangular prism.
3. All faces of pyramid are always
a) triangular
6) rectangular
c) congruent
d) None of these
d) All faces of a pyramid are always based on the shape of pyramid.
4. Out of the following, which is a 3-D figure? (NCERT)
a) Square
6) Sphere
c) Triangle
d) Circle
7) In the given option figures, only sphere is a 3-d figure.
5. Total number of edges a cylinder fias
a) 0
b) 1
c) 2
d) 3
c) Total number if edges a cylinder has 2
6. When we cut a corner of a cube as shown in the figure, we get the cut-out piece as

a) square pyramid
c) triangular pyramid
6) trapezium prism
d) a triangle
c) If we cut a corner of a cube, then we get cut-out a piece in the form of triangular pyramid.
7. If we rotate a right angled triangle of height 5 cm and base 3 cm about its height a full turn, we get
a) cone of height 5 cm , base diameter 3 cm
6) triangle of height 5 cm , base diameter 3 cm
c) cone of height 5 cm , base diameter 6 cm
d) triangle of height 5 cm , base diameter 6 cm
c) If we rotate a right angled triangle of height 5 cm and base 3 cm about its feight a full turn. Then we get a cone of height 5 cm and base diameter 6 cm .
8. Looking at the following object from the side, what will be the view?

(a)

(b)

(c)

(d)

d) From the side view, we will see the option (d) image.
9. Take a square piece of paper as shown in fig(1). Fold it along its diagonals as shown in fig(ii). Again, fold it as shown in fig. (iii), Imagine that you have cut-off 3 pieces of the form of congruent isosceles right-angled triangles out of it as shown in figure 4.

(i)

(ii)

(iii)

(iv)

On opening the piece of paper, which of the following shapes will you get?
(a)

(b)

(c)

(d)

a) As per the givencondition, if we openthe piece of paper we will get option (a) figure.
10. Which of the following 3-dimensional figures has the top, side and front as triangles?

(a)

(b)

(c)

(d)
c) Option figure (c) will show all (top, side and front) view as triangle.
11. Which of these nets is a net of a cube?
(a)

(b)

(c)

(d)

6) Cube has all sides equal and in net (6) all the sides are equal. Hence, option (6) is correct.
12. Which of the following nets is a net of a cylinder?
c) The cylinder has two circles on the both ends and has a rectangular face. So option (c) is showing the exact net of a cylinder. Hence option (c) is correct.
(a)

(b)


(d)


## III. Multiple choice questions

1. A solid that has only one vertex is
a) pyramid
b) сивe
c) cone
d) cylinder
2. A solid that has two opposite identicalfaces and other faces as parallelograms is a
a) prism
6) pyramid
c) cone
d) sphere
3. The solid with one circular face, one cured surface and one vertex is know as
a) cone
6) sphere
c) cylinder
d) prism

IV. Multiple choice questions
1. The name of the solid shape is

a) cone
b) cylinder
c) sphere
d) сивe
2. The name of the solid shape is

a) сивe
6) cylinder
c) cone
d) sphere
3. The name of the solid shape is

a) cylinder
6) cone
c) cuboid
d) spfere
4. The name of the solid shape is

a) cylinder
b) cone
(1) c) cuboid
d) sphere
5. The number of vertices of the solid shape is

a) 1
b) 2
c) 3
d) 4
6. The number of faces of the solid shape is

a) 1
b) 2
c) 3
d) 4
7. The number of edges of the solid shape is

a) 1
b) 2
c) 3
d) 6
8. The number of vertices of the solid shape is

a) 9
b)

c) 6
(d) 8
9. The number of faces of the solid shape is

a) 4
b) 6

10. The number of edges of the solid shape is

a) 16
b) 9
c) 6
d) 4
11. What cross-section do youget when you give a horizontalcut to a die?
a) Square
6) rectangle
c) Triangle
d) circle
12. What cross-section do youget when you give a verticalcut to a brick?
a) $S$ quare
6) rectangle
c) Triangle
d) circle
13. What cross-section do youget when you give a forizontalcut to a brick?
a) Triangle
6) circle
c) Square
d) rectangle
14. What cross-section do youget when you give a verticalcut to a round apple?
a) circle
6) $\operatorname{Triangle}$
c) Square
d) rectangle
15. What cross-section do youget when you give a horizontalcut to a round apple?
a) circle
6) Square
c) rectangle
d) Triangle
16. What cross-section do youget when you give a verticalcut to an ice-cream cone?
a) Triangle
6) circle
d) rectangle
d) Square
17. What cross-section do youget when yougive a forizontalcut to an ice-cream cone?
a) Triangle
6) circle
d) rectangle
d) Square

| 1.6 | $2 . a$ | 3.6 | $4 . d$ | $5 . d$ | $6 . d$ | $7 . d$ | $8 . a$ | $9 . c$ | $10 \cdot a$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $11 \cdot a$ | $12 . a$ | $13 \cdot d$ | $14 \cdot a$ | $15 \cdot a$ | $16 \cdot a$ | 17.6 |  |  |  |

## I. Fill in the Blanks

1) The common portion of two adjacent faces of a cuboid is called a/an edge.( $\mathcal{N}$ (CERT)
2. A plane surface of a solid enclosed byedges is called a/an face.
3. The corners of solid shapes are called its vertices.
4. An example of solid with no vertex is sphere.
5. $\mathcal{A}$ triangular prims has $\underline{5}$ faces, $\underline{9}$ edges and $\underline{6}$ vertices.
6. A triangular pyramid fias $\underline{4}$ faces, $\underline{6}$ edges and $\underline{4}$ vertices. (NCERI)
7. A square pyramid has $\underline{5}$ faces, $\underline{8}$ edges and $\underline{5}$ vertices.
8. Out of $\underline{5}$ faces of a triangular prism, $\underline{3}$ are rectangles and $\underline{2}$ are triangles.
9. 


10.

is a net of a triangular prism
11. Identical cubes are stacked in the corner of a room as shown below. The number of cubes that are not visible are 20.

I. True or False

1. In oblique sketch of the solid, the measurements are kept proportional ( $\mathcal{N}(\mathcal{E R} \mathcal{I})$ - False
2. An isometric sketch does not have proportionallength. - False
3. A cylinder fas no vertex. - True
4. All the faces, except the base of a square pyramid are triangular. (NCERT) - True
5. A pyramid has only one vertex. - False
6. A triangular prism has 5 faces,9 edges and 6 vertices( $\mathcal{N C E R T}$ ) - True
7. If the base of a pyramid is a square, it is called a square pyramid. - True
8. A rectangular pyramid fas 5 rectangular faces. - False
9. While rectangle is a 2-D figure, cuboid is a 3-D figure. - True
10. While sphere is a 2-D figure, circle is a 3-D figures. ( $\mathcal{N C E R I ) ~ - ~ F a l s e ~}$

## I. Match the following

1. Match the Column $A$ with Column B.

|  | Column A | Column B |
| :--- | :--- | :--- |
| (i) | (a) Triangle |  |
| (ii) | (b) Rectangle |  |
| (iii) | (c) Trapezium |  |
| (iv) | (d) Cylinder |  |


| i) 6 | ii) $d$ | iii) $a$ | iv) $c$ |
| :--- | :--- | :--- | :--- |

> II. Match the following
2. Match the Column A with Column B.


| i) $b$ | ii) $c$ | iii) $a$ |
| :--- | :--- | :--- |

I. Very Sfort Answer Questions

1. How many faces does a cube fave?
2. 
3. How many faces does a square pyramid has?

5
3. How many edges does a a cube fas?

12
4. Name a sotid which fas no vertex

Sphere
5. Name a solid which fas only one vertex

Cone

1. Which pyramid is called tetrafedron?

Triangular pyramid.
2. Which prism is called a cube?

Square prism
3. How many vertices are there in a pentagonal pyramid?

Six
4. How many vertices are there in a rectangular pyramid?

Five
5. Dice are cubes with dots on a each face. Opposite faces of a die always have atataf nf seven dots on them.

Here's a met to make dice (cube); the numbers inserted in each square indicate the number of dots in the box


Insert suitable numbers in the blanks, remembering that the number on the opposite faces should totalno.7.
7. Three cubes each with 2 cm edge are placed side by side to form a cuboid. Sketch an oblique or isometric sketch of this cuboid.

The adjoining figure is an isometric sketch of a cuboid formed by placing three cubes each of 2 cm edge side by side.

I Sfort Answer Questions

1. For a pyramid there are 4 faces and vertices. Find the number of edges.

For a pyramid, faces and vertices are given by
$\mathcal{F} \cdot \mathcal{E}+\mathcal{V}=2$
$4-\mathcal{E}+4=2(\mathcal{F}=4$ and $\mathcal{V}=4)$
$\Rightarrow 8-\mathcal{E}=2$
$\Longrightarrow \mathcal{E}=8-2=6$
Hence, there are 6 edges.
2. Here is an oblique sketch of a cuboid.


Drawan isometric sketch that matches this drawing.

3. Match the two dimensional figure with the names.

| (a) | $\square$ | (i) | Circle |
| :--- | :---: | :--- | :--- |
| (b) | $\square$ | (ii) | Rectangle |
| (c) |  | (iii) | Square |
| (d) | $\square$ | (iv) | Quadrilateral |
| (e) | $\square$ | (v) | Triangle |

After matching the two-dimensionalfigures, the ir corresponding names are given below:

| (i) | $\square$ | (a) | Rectangle |
| :--- | :---: | :--- | :--- |
| (ii) | $\square$ | (b) | Circle |
| (iii) | $\square$ | (c) | Triangle |
| (iv) | $\square$ | (d) | Square |
| (v) | $\square$ | (e) | Quadrilateral |

4. Try to guess the number of cubes in the following arrangements in the figure

(a)

(b)

(c)
$\mathcal{N}$ umber of cubes in the given arrangements are as follows:
a) Cubes
b) 8 cubes
c) 9 cubes

II Short Answer Questions

1. Two dice are placed side by side as show: Can you say what the total would be on the face opposite to.
(i) $5+6$ ?
(ii) $4+3$ ?
(Remember that in a die sum of numbers on opposite faces is 7)
i) The total of opposite to face $5+6$ is $2+1$ i.e. 3
ii) The total of opposite to face $4+3$ is $3+4$ i.e. 7 .
2. Examine if the following are true statements:
i) The cube cancast a shadow in the shape of a rectangle.
ii) The cube can cast a shadow in the shape of a hexagon.
3. For each solid, the three views (1), (2), (3) are given, Identify for each solid the corresponding top, front and side vie ws.

(ii)
Front
i) (1) $\rightarrow$ Front, (2) $\rightarrow$ Top, (3) $\rightarrow$ Side
ii) $(1) \rightarrow$ Front, $(2) \rightarrow$ Side, $(3) \rightarrow$ Top
4. What cross-sections do you get when you give a
i) vertical cut
ii) Korizontal cut to the following solids?
a) A circular pipe
6) $\operatorname{An}$ ice cream cone

|  | Solid | Shape of cross-section for vertical.cut | Shape of cross-section for horizontal - cut |
| :---: | :---: | :---: | :---: |
| a) | $\mathcal{A}$ circular pipe | Circle | Rectangle |
| 6) | $\mathfrak{A n}$ Ice-cream cone | Triangle | Circle |

5. A bulb is kept burning just right above the following solids. Name the shape of the shadows obtained in each case. Give a rough sketch of the shadow.
(i)

(ii)


When light falls just above the solid i.e.
i) The shadow of a cylindric al pipe looks like a rectangle
ii) $\mathcal{A}$ book, the shadow looks like ne arly a rectangle.
6. Here are the shadows of some 3-D objects, when seen under the lamp of an overfiead projector. Identify the solid (s) that match each shadow.
(i)

(ii)

i) The given shadow corresponds to a spfere
ii) The given shadow corresponds to a cuboid or a cylinder.
7. Identify the nets which can be used to make cubes:
(i)

(ii)

(iii)

(iv)


Sol (ii) and (iii) can be used to make cubes.
8. Can this be a net for a die? Explain your answer. ( $\mathcal{N C E R T}$ )
$\mathcal{N}$ o because one pair of opposite faces will have 1 and 4 on them whose total is not equal
to 7. Another faces are having 3 and 6 on them whose total is also not equal to 7.

9. Hers is an incomplete net for making a cube. Complete it in at least two different ways. Remember that a cube has six faces. How many are there in the net here ? ( $N(C E R T$ )
(Give two separate diagrams)

(i)

(ii)

10. Match the nets with appropriate solids:
(a)

(i)

(b)

(ii)

(c)

(iii)

(d)

a) - (ii)
(iv)

c) - (iv)
Long Answer Questions

1. The dimension of a cuboid are $5 \mathrm{~cm}, 3 \mathrm{~cm}$ and 2 cm . Draw three different isometric sketches of this cuboid.

2. Sketch the net of a triangular prism whose ends are right triangles of sides $6 \mathrm{~cm}, 8 \mathrm{~cm}$ and 10 cm . The length of the prism is 12 cm .

The required net is given below.

3. Using an isometric dot paper, draw the solid shape formed by the net given below. :



The given net is that of a cuboid of dimensions as 5 cm х $4 \mathrm{~cm} \chi 3 \mathrm{~cm}$. The solid shape formed is shown in the following figure.
4. Look at the adjoining figures given below of the net of a cube. How will you fold the various faces to make a cube?


We can fold the given faces in the following manner to obtain a solid cube.
Step 1: Keep the face 3 as the Gase of the cube.
S tep II : Fold and bring the faces 3 and 4 opposite to each other.
Step III :Fold and bring the face 5 opposite to face 3.
S tep IV: Fold and bring the faces 1 and 6 opposite to each other.
Thus we get the required cube.
5. In the figure of a cube,
i) Which edge is the intersection of faces $\mathcal{E P G \mathcal { H }} \mathcal{A N} \mathcal{N} \mathcal{E F B A}$ ?
ii) Which faces intersect at edge $\mathcal{F B}$ ?
iii) Which three faces form the vertex $\mathcal{A}$ ?
iv) Which vertex is formed by the faces $\mathcal{A B C D}, \mathcal{A D H E} \mathcal{A N D} \mathcal{C D H}$
v) Give all the edges that are parallel to edge $\mathcal{A B}$.

vi) Give the edges that are neither parallel nor perpendicular to edge $\mathcal{B C}$.
vii) Give the edges that are perpendicular to edge $\mathcal{A B}$.
viii) Give four vertices that do not lie in one plane.
i) $\mathcal{E F}$ is the intersection of faces $\mathfrak{E F G \mathcal { H }}$ and $\mathfrak{E F B A}$.
ii) $\mathcal{A B F E}, \mathcal{B F G C}$ are the faces that interact at $\mathcal{F B}$.
iii) $\mathfrak{A B E F}, \mathfrak{A B C D}, \mathcal{A D H} \mathcal{E}$ are three faces from the vertex $\mathcal{A}$.
iv) $\mathcal{D}$ is the common vertex formed by these faces.
v) $\mathcal{C D}, \mathfrak{E F}, \mathcal{G} \mathcal{H}$, are edges parallel to edge $\mathcal{A B}$.
vi) $\mathcal{A E}, \mathcal{E F}, \mathcal{G H}, \mathcal{H D}$ are neither parallelnor perpendicular to edge $\mathcal{B C}$.
vii) $\mathfrak{A E}, \mathcal{B F}, \mathcal{A D}, \mathcal{B C}$ are perpendicular to edge $\mathcal{A B}$.
viii) Severalgroup of points like $\mathcal{A}, \mathcal{E}, \mathcal{C}$ and $\mathcal{B}$.
6. Draw the nets of the following: (NCERI)
i) Triangular prism
ii) Tetrafiedron
iii) Cuboid

7. Draw the net of triangular pyramid with base as equilateral triangle of side 3 cm and slant edges 5 cm


