Indian School Al Wadi Al Kabir
Assessment – I (2025-2026)

Class: XI | ENGINEERING GRAPHICS (046) | Max. marks:70
Date: 23/09/2025 | Set- I | Time: 3 hrs.

General Instructions:
(i) Attempt all the questions.
(ii) Use both sides of the drawing sheet, if necessary.
(iii) All dimensions are in millimetres.
(iv) Missing and mismatching dimensions, if any, may be suitably assumed.
(v) Follow the SP: 46 – 2003 revised codes. (with the first angle method of projection)

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20 × 1 = 20

SECTION – A

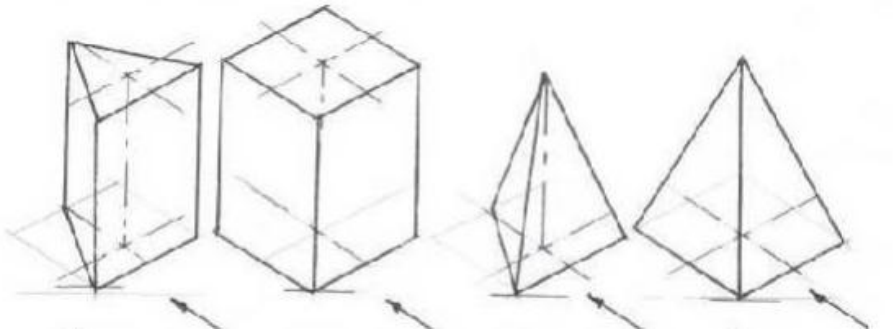
Q.1 to Q.20: Answer the following multiple-choice questions. Print the correct choice on your drawing sheet.

1. The metric system and English system are the two universal systems of _____.
   (a) height measures. (b) width measures.
   (c) length measures. (d) weight measures.

2. According to the first angle method of projection, the front view of a solid is a rectangle, and the top view is a pentagon. Identify the three-dimensional solid?
   (a) Cuboid (b) Cylinder
   (c) Pentagonal pyramid (d) Pentagonal prism

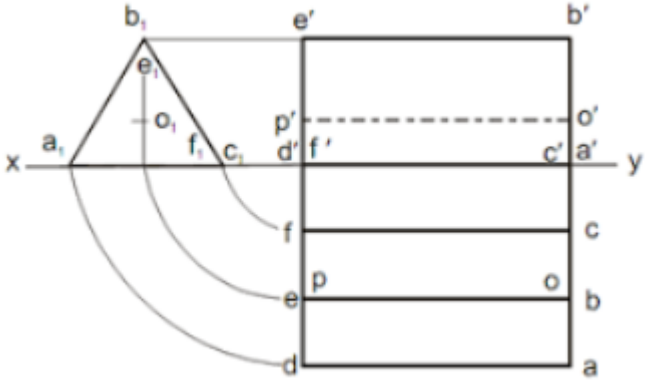
3. A parabola, ellipse and circle can be obtained by sectioning a:
   (a) Cylinder (b) Pyramid
   (c) Cone (d) Square

4. Identify a vertical square pyramid with its axis perpendicular to HP and parallel to VP from the given figures.



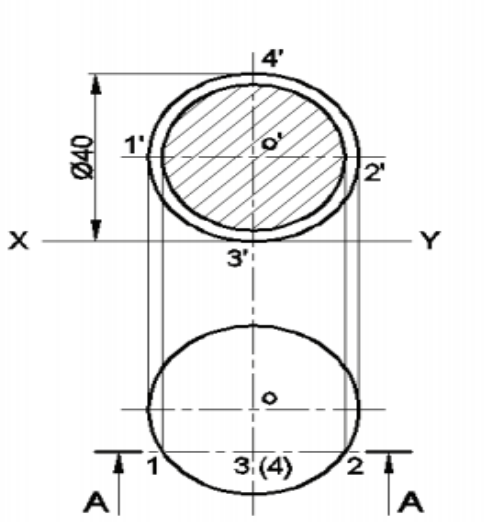
(a) (b) (c) (d)

5. Identify the solid and the position of the axis line from the given figure:



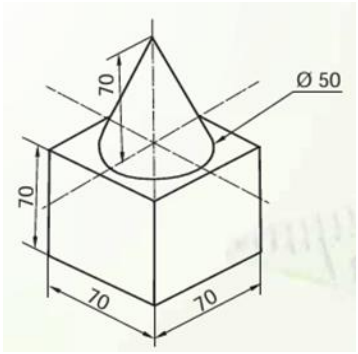
(a) Triangular prism and axis perpendicular to HP.
(b) Triangular prism and axis perpendicular to VP.
(c) Triangular prism and axis parallel to both HP and VP.
(d) Triangular pyramid and axis parallel to both HP and VP.

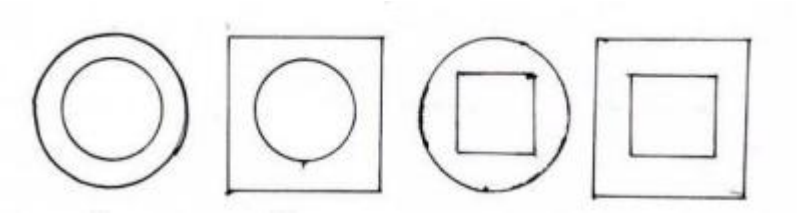
6. Which type of section plane is shown in the given figure?



(a) Vertical section plane
(b) Horizontal section plane
(c) Oblique section plane
(d) Inclined section plane

7. Select the top view of the combination of solids.





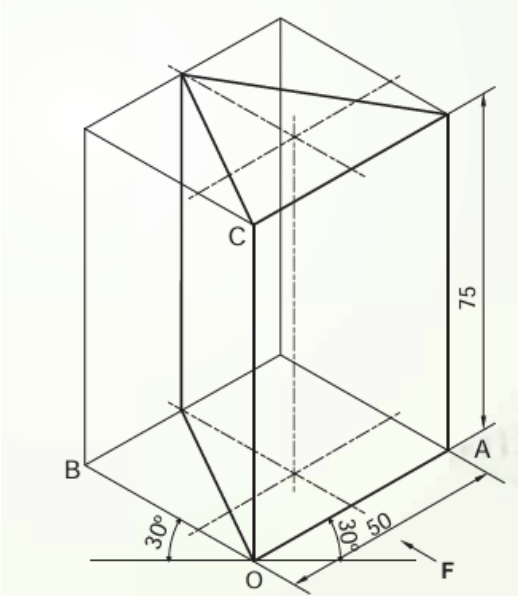
(a) (b) (c) (d)

8. Match the LIST I with LIST II

LIST I – TYPES OF FIGURES	**LIST II – ANGLE INCLUDED**
1. Pentagon	(i) 135 degrees
2. Octagon	(ii) 120 degrees
3. Hexagon	(iii) 90 degrees
4. Square	(iv) 108 degrees

(a) 1-(iii), 2-(iv), 3-(i), 4-(ii)
(b) 1-(i), 2-(ii), 3-(iii), 4-(iv)
(c) 1-(ii), 2-(iii), 3-(iv), 4-(i)
(d) 1-(iv), 2-(i), 3-(ii), 4-(iii)

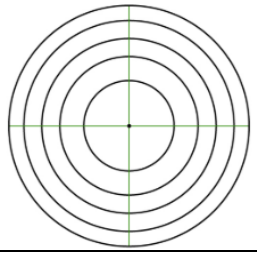
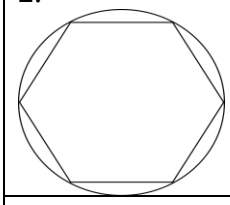
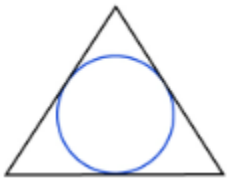
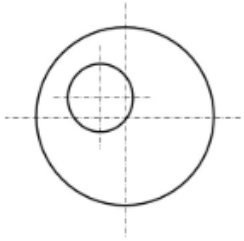
9. Choose the correct statements for the given figure.



(i) The figure shows an image of a triangular prism.
(ii) The figure shows an image of a triangular pyramid.
(iii) The front view of the figure will be a triangle.
(iv) The axis of the figure is perpendicular to HP.

(a) (i) and (iii) only.
(b) (i) and (iv) only.
(c) (i) and (ii) only.
(d) (ii) and (iv) only.

10. Match the LIST I with LIST II

LIST 1: TYPES OF CIRCLES	LIST II: DEFINITIONS OF CIRCLES
1. 	i. Inscribing of circles
2. 	ii. Eccentric circles
3. 	iii. Concentric circles
4. 	iv. Circumscribing of circles

(a) 1-iii, 2-iv, 3-i, 4-ii
(b) 1-i, 2-iii, 3-ii, 4-iv
(c) 1-iv, 2-iii, 3-i, 4-ii
(d) 1-ii, 2-iv, 3-i, 4-iii

11. When the axis of a solid is parallel to HP and VP, then the true shape of the base will be seen in the:
    (a) Front view
    (b) Bottom view
    (c) Side view
    (d) Top view

12. _____ are two-dimensional drawings of different views of a three-dimensional object.
    (a) Isometric
    (b) Axonometric

(c) Oblique
(d) Orthographic

13. The main purpose of sectioning a solid is to:

(a) Reduce the size of the drawing.
(b) Show the hidden edges as dotted lines.
(c) Make internal details clearly visible.
(d) Remove unnecessary views.

14. In Engineering Graphics, the plan of an object refers to:

(a) Front view
(b) Left side view
(c) Top view
(d) Right side view

15. The main advantage of orthographic projection is:

(a) Gives a realistic 3D appearance.
(b) Shows the true shape and size of all surfaces.
(c) Shows shadows and depth.
(d) Reduces the number of dimensions.

SECTION B

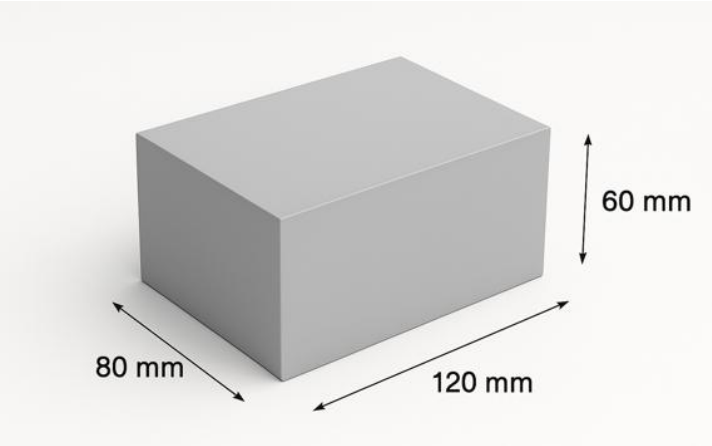
Q16. To Q.20: Read the following paragraph and answer the questions given below

Object: A Rectangular Gift Box

Specifications:

- Shape: **Rectangular prism (cuboid)**
- Length: 120 mm, Width: 80 mm, Height: 60 mm
- The box is placed on a table (HP) with its **longer side parallel to VP**.
- Drawing method: **First-angle projection**.

Scenario:
You are preparing orthographic projections (front and top views) of the gift box for a product catalogue.



16. How is the axis of the box positioned in this case?
    (a) Parallel to both HP and VP
    (b) Perpendicular to HP and parallel to VP
    (c) Perpendicular to both HP and VP
    (d) Inclined to HP and parallel to VP

17. What will the top view of the gift box look like?
    (a) Square of 80 mm side
    (b) Rectangle of 120 mm × 80 mm
    (c) Rectangle of 120 mm × 60 mm
    (d) Rectangle of 80 mm × 60 mm

18. In the front view, which dimensions are visible?
    (a) Length and height
    (b) Width and height
    (c) Length and width
    (d) Length only

19. In first-angle projection, where will the **top view** be placed?
    (a) Above the front view
    (b) Below the front view
    (c) To the right of the front view
    (d) To the left of the front view

20. If a small object is inside the box (not visible from outside), how will it be shown in the projections?
    (a) Solid lines in both views
    (b) Dashed lines in both views
    (c) Dotted lines in both views
    (d) Not shown at all

SECTION B

2 × 3 = 6

21. On a base AB = 30 mm long, construct a regular hexagon with the compasses.

22. Draw a given square whose diagonal is 60 mm. Circumscribe a circle about it.

2 × 5 = 10

23. A line AB, 75mm long, makes an angle of 60 degrees with the HP and its top view makes an angle of 45 degrees with VP. Its end A is 10 mm above HP and 20 mm in front of VP. Draw its front view and top view. Also, find the true angle of inclination with the VP using the **line rotation method.**

24. A hexagonal pyramid is resting on its base on the ground with two of its base edges of length 30 mm, parallel to HP. A horizontal section plane bisects the 80 mm long axis. The axis is perpendicular to H.P. Draw the Front View and sectional Top View.

2 × 7 = 14

25. A cylinder of 50 mm base diameter and 60 mm axis rests vertically on HP on its base. It is sectioned by a plane perpendicular to VP, inclined at 45 degrees to HP and intersecting the axis at a point 15 mm below its top end. Project its front view and sectional top view.

26. Draw the projections of a circular lamina of 30 mm diameter. The lamina is inclined at an angle of 45° to VP. The centre of the circle is 25 mm from HP and 15 mm from VP.

2 × 10 = 20

27. Project the Front View and Top View of a pentagonal pyramid of 30 mm base edges and 70 mm long horizontal axis, parallel to both HP and VP, when it is resting on one corner of its base with one edge of its base on top, parallel to HP.

28. A square prism of base side 40 mm and height 70 mm is resting on its rectangular face on the ground such that its axis is parallel to HP & VP. It is cut by a section plane perpendicular to HP & inclined to VP at an angle of 45° and passing through a point 10 mm from one of its ends. Draw the sectional Front View and Top View.