DIRECTORATE OF EDUCATION, GNCT OF DELHI

MID TERM EXAMINATION PRACTICE PAPER

CLASS XI

SESSION - 2025-26

ENGINEERING GRAPHICS (046)

Time allowed: 3 hours Maximum Marks: 70

General Instructions:

I. Question paper contains three sections Section-A, Section-B & Section-C respectively.
II. All questions are compulsory.
III. Use both sides of the drawing sheet, if necessary.
IV. All dimensions are in millimetres.
V. Missing and mismatching dimensions, if any, may be suitably assumed.
VI. Follow the SP: 46 – 2003 revised codes. (with first angle method of projection)

SECTION – A

Q. 1 to Q. 14: Answer the following Multiple-Choice Questions. Print the correct choice on your drawing sheet. 14x1=14

1. We can draw all measurement of angles using:
    a. Compass
    b. Divider
    c. Scale
    d. Protractor
2. The circle passing through each vertices of a regular pentagon is a:

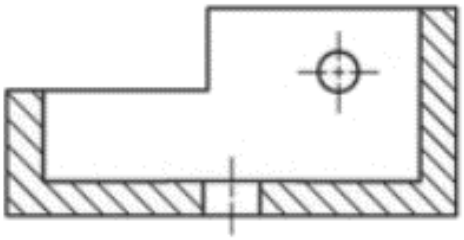
a. Inscribing circle

b. Pitch circle

c. Circumscribing circle

d. Chamfer circle

3. The inclined parallel lines in the given images are known as:



a. Dimension Lines

b. Hatching Lines

c. Hidden Lines

d. Axial Lines

4. Choose the **correct** statement regarding angle:

a. The arms of an angle are always curved lines.

b. An angle can be formed using only one ray.

c. The common endpoint of the rays forming an angle is called the vertex.

d. Angles are measured only in centimetres.

5. A pentagonal prism is resting on its rectangular faces such that its axis is parallel to both H.P. and, then its pentagonal face will be seen in its:

a. side view

b. top view

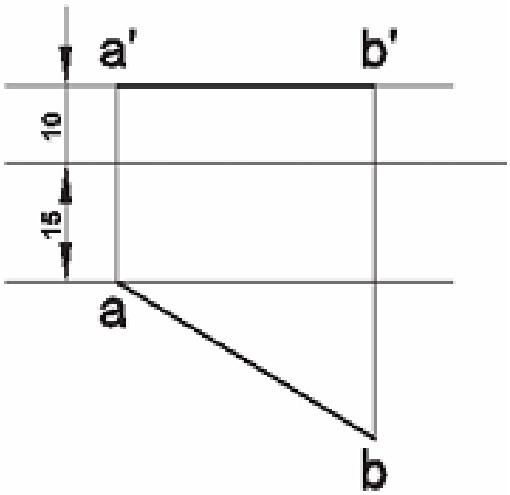
c. front view

d. bottom view

6. Which of the following solid is also known as solid of revolution:

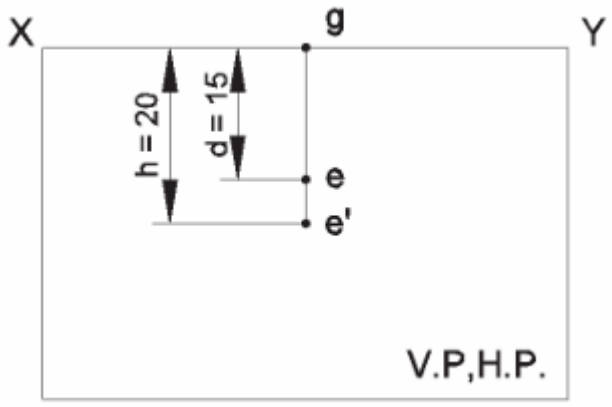
    a. Cube
    b. Pentagonal Pyramid
    c. Square Prism
    d. Cone

7. Choose the **correct** option for a line "ab" drawn using first angle projection:



    a. Point 'a' is 15 mm above HP
    b. Point 'b' is 15 mm above HP Line
    c. Point 'a' is 15 mm in front of VP
    d. Point 'b' is 15 mm in front of VP

8. Choose the **correct** option for the given first angle projection of a point 'E':



a. Point is placed in First quadrant.

b. Point is placed in Second quadrant.

c. Point is placed in Third quadrant.

d. Point is placed in Fourth quadrant.

9. Identify the **correct** statements regarding triangles:

A. A triangle can have two right angles.

B. A triangle can exist with side lengths 2 cm, 3 cm, and 10 cm.

C. A scalene triangle has three unequal sides.

D. A triangle is a rectilinear figure bounded by seven sides.

E. An isosceles triangle has two sides equal and two angles equal.

Choose the **correct** answer from the options given below:

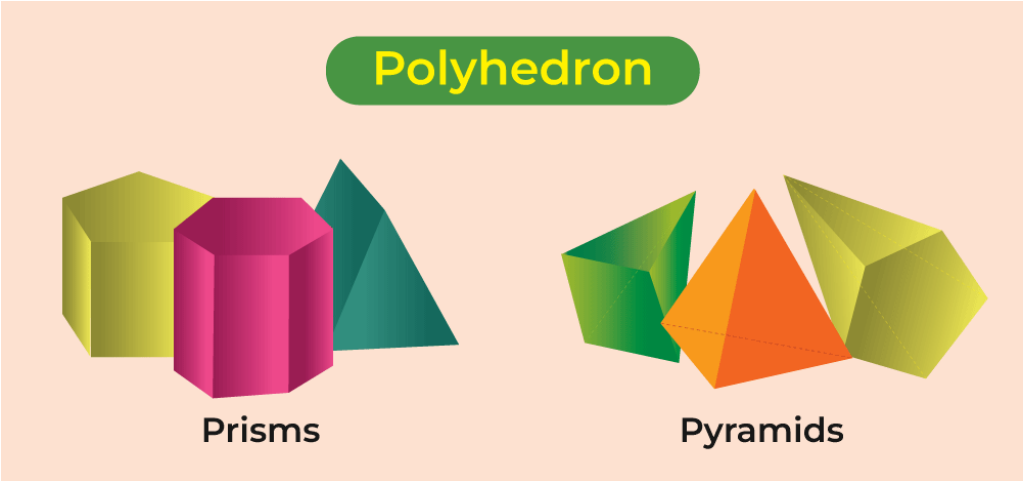
a. B & D only

b. A & E only

c. C & D only

d. C & E only

10. Identify the **correct** statements for the solid:



A. A polyhedron is a solid bounded by flat polygonal faces.

B. The vertices of a polyhedron are the points where three or more edges meet.

C. A tetrahedron has 6 faces.

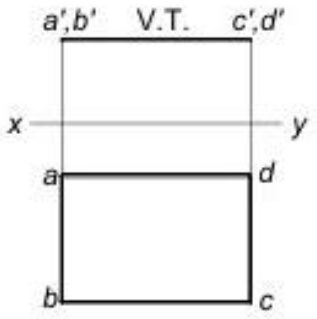
D. A prism always has triangular bases only.

E. A polyhedron can exist with only two faces

Choose the **correct** answer from the options given below:

a. A & B only
b. B & E only
c. C & D only
d. B & C only

11. Identify the **correct** statements for the given first angle projection:



A. The rectangle "abcd" is parallel to HP.
B. In the front view, side 'ad' is visible edge of the given rectangle "abcd".
C. The side 'ab' and 'dc' are perpendicular to VP.
D. The rectangle "abcd" is perpendicular to HP.
E. The view shown below reference line 'xy' is the front view of the rectangle.

Choose the **correct** answer from the options given below:

a. A & B only
b. D & E only
c. A & C only
d. B & E only

12. Match **Column-I** with **Column-II**:

Column- I (Types of angles)		**Column- II (Measurement)**	
1	Acute angle	(A)	90°
2	Right angle	(B)	180°
3	Obtuse angle	(C)	0° to 90°
4	Straight angle	(D)	91° to 120°

Choose the **correct** answer from the options given below:

a. 1-(A), 2-(B), 3-(C), 4-(D)

b. 1-(B), 2-(D), 3-(A), 4-(C)

c. 1-(D), 2-(C), 3-(B), 4-(A)

d. 1-(C), 2-(A), 3-(D), 4-(B)

13. Match **Column-I** with **Column-II**:

Column- I (Name of Solid)		**Column- II (Number of Faces)**	
1	Cube	(A)	Zero
2	Cylinder	(B)	One
3	Cone	(C)	Two
4	Sphere	(D)	Six

Choose the **correct** answer from the options given below:

a. 1-(B), 2-(D), 3-(A), 4-(C)

b. 1-(D), 2-(C), 3-(B), 4-(A)

c. 1-(B), 2-(C), 3-(D), 4-(A)

d. 1-(D), 2-(C), 3-(A), 4-(B)

14. Match **Column-I** with **Column-II**:

Column- I (Type of projection)		**Column- II**	
1	Oblique Projection	(A)	As seen from human eyes.
2	Perspective Projection	(B)	Best for mathematician.
3	Orthographic Projection	(C)	3D parallel projection
4	Isometric Projection	(D)	2D parallel projection.

Choose the **correct** answer from the options given below:

a. 1-(B), 2-(D), 3-(C), 4-(A)

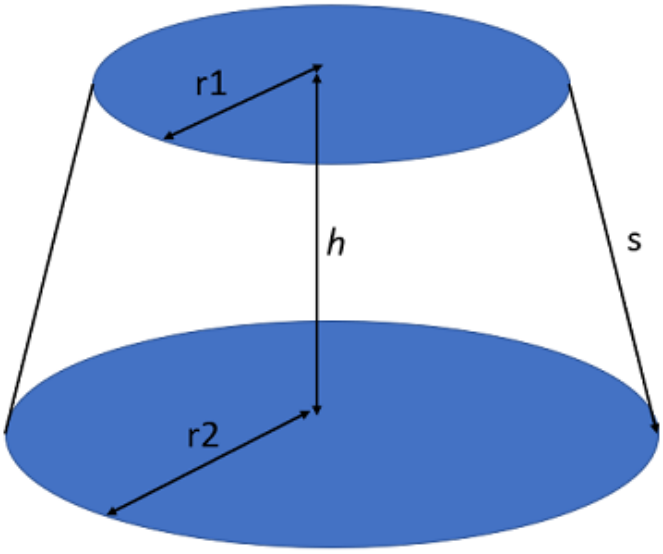
b. 1-(A), 2-(C), 3-(D), 4-(B)

c. 1-(C), 2-(A), 3-(B), 4-(D)

d. 1-(B), 2-(A), 3-(D), 4-(C)

SECTION – B

Q. 15 to Q. 18: Read the following paragraph and answer the questions given below: **4x1 = 4**



The figure represents a **frustum of a cone**, which is obtained when a cone is cut by a plane parallel to its base and the top portion is removed. It consists of two circular bases of different radii: the upper radius 'r1' and the lower radius 'r2'. The perpendicular distance between the two bases is called the **height (h)**, while the slant side is denoted by **'s'**. Frustums are common in real life, such as in buckets, lampshades, and glasses.

15. Axial height of the solid is:

    a. r1

    b. r2

    c. h

    d. s

16. A frustum is formed by cutting a cone with a plane _____ to its base.

a. Perpendicular to base

b. Parallel to base

c. Inclined to base

d. No relation with base

17. The total surface area of a frustum includes:

a. Curved surface area only

b. Two circular areas only

c. Curved surface area + areas of both bases

d. Curved surface area + areas of one base

18. If r1 = r2 the frustum becomes a:

a. Cube

b. Cone

c. Hemisphere

d. Cylinder

Q. 19 to Q. 22: Read the following paragraph and answer the questions given below: 4x1=4

Dimensioning is the process of indicating the size, shape, and features of an object on a drawing. It ensures that the manufacturer can produce the component accurately. There are different types of dimensioning based on placement and method. Linear dimensioning shows lengths, widths, and heights, while angular dimensioning represents angles. Aligned dimensioning places dimensions parallel to the dimension line, whereas unidirectional dimensioning keeps all dimensions readable from one direction. Chain dimensioning places dimensions in a series, while parallel dimensioning gives measurements from a common reference. Proper dimensioning improves clarity, reduces mistakes, and ensures uniform communication in engineering drawings.

27. Which type of dimensioning shows lengths, widths, and heights?

    a. Linear
    b. Chain
    c. Angular
    d. Parallel

28. In the dimension, the symbol 'Ø' stands for:

    a. Area of the circle
    b. Diameter of the circle
    c. Radius of the circle
    d. Centre of the circle

21. Chain dimensioning is used when dimensions are:

    a. Independent
    b. Connected in a series
    c. Circular
    d. Start from single point

22. Which dimensioning method is best for avoiding accumulation of errors?

    a. Chain dimensioning
    b. Angular dimensioning
    c. Parallel dimensioning
    d. Unidirectional dimensioning

23. Ramesh is observing a square painting (as shown in the image below) hanging on a wall 20 mm above of the floor. The side of the painting is 50 mm and parallel to wall (VP). Two of the parallel sides of the painting are parallel to floor (HP). Draw its front view and top view. Give dimensions. **12**

24. A pentagonal rubric toy of base edge 42 mm and height 60 mm is placed on a table (HP) with its pentagonal face. One of its base edge is parallel to wall (VP) and near to it. Draw its front view and top view. Print the title and scale used. Draw projection symbol. Give important dimensions. **15**

OR

An ice-cream cone is shown in the image below. The diameter of the circular face is 38 mm and vertical height is 68 mm. The inverted cone is resting on HP with its apex keeping its axis perpendicular to HP. Draw its front view and top view. Print the title and scale used. Draw projection symbol. Give important dimensions. **15**

SECTION – C

25. Construct an equilateral triangle of base 60 mm using compass. Give dimensions. **6**

26. Circumscribe a circle around a regular pentagon of side 36 mm. Give dimensions. **7**

OR

Inscribe a circle in a regular hexagon of side 40 mm. Give dimensions. **7**

27. A straight-line PQ of 58 mm length is parallel to both HP and VP. The point 'P' is 20 mm above the HP and 30 mm in front of the VP. Draw the front view and top view of the line and give dimensions. **8**