DIRECTORATE OF EDUCATION, GNCT OF DELHI
MID TERM EXAMINATION PRACTICE PAPER
CLASS XII
SESSION - 2025-26
ENGINEERING GRAPHICS (046)

Time Allowed: 3 hours   *Maximum Marks: 70*

Note:

  (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 first angle method of projection)

  (vi)   In question 23, hidden edges or lines are to be shown in views without section.

 (vii)   In question 24, no hidden edges or lines required.


SECTION – A

Q 1 to Q 14 – Answer the following multiple choice questions. Print the correct choice on your drawing sheet: 14 X 1 = 14

1. Which one among the following methods cannot produce 'One plane/pictorial' drawings?

    a) Isometric Projection

    b) Perspective Projection

    c) Oblique Projection

    d) Orthographic Projection

2. _____ resembles an inverted solid.

    a) A cone filled with ice-cream

    b) A glass prism

    c) Pyramid of Giza

d) A cylindrical glass tumbler

3. Which figure among the following correctly represents a triangular prism whose axis is perpendicular to H.P and one of its base edges is parallel to V.P.?

(a)

(b)

(c)

(d)
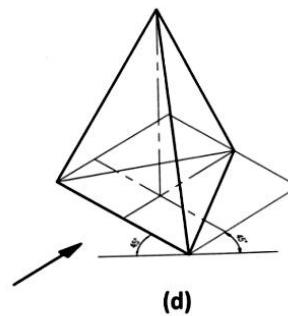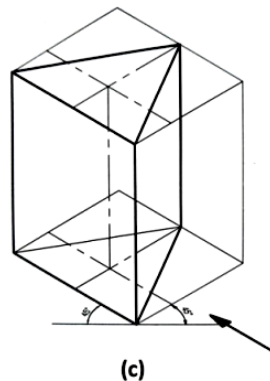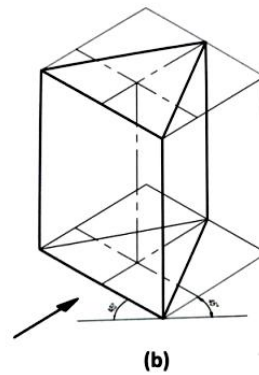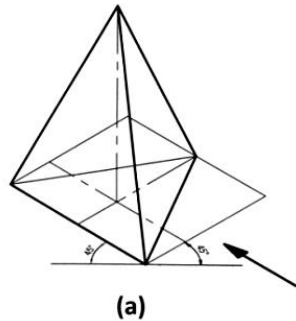
4. A gasket in Flange Pipe Joint is provided to
   a) align the two flanges.
   b) check leakage of fluid in pipes.
   c) support the nuts and bolts.
   d) fill the gap between the flanges.

5. The joint used for tightening of electric overhead wires is
   a) Spigot and Socket Joint
   b) Turn Buckle / Tie Rod Joint
   c) Gib and Cotter Joint

d) Knuckle Joint

6. CRS in Open Bearing stands for

    a) Centre to centre distance

    b) Edge to edge distance

    c) Corner to corner distance

    d) Top to bottom distance

7. P.C.D. in flange pipe joint means

    a) Pitch corner diameter

    b) Pitch counter distance

    c) Pitch centre distance

    d) Pitch circle diameter

8. Usually taper in cotter is given as

    a) 1 in 10

    b) 1 in 20

    c) 1 in 30

    d) 1 in 40

9.
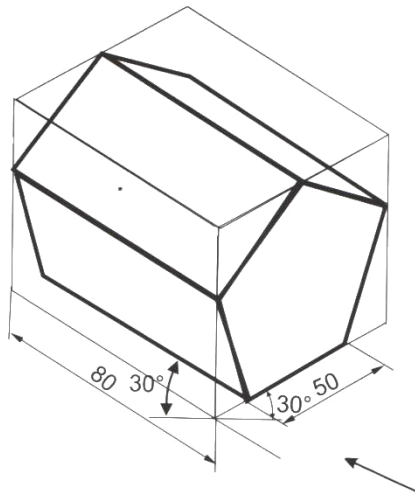

    a) The hexagonal ends are parallel to VP

    b) The pentagonal ends are parallel to VP

    c) The hexagonal ends are perpendicular to VP

    d) The pentagonal ends are perpendicular to VP

10.
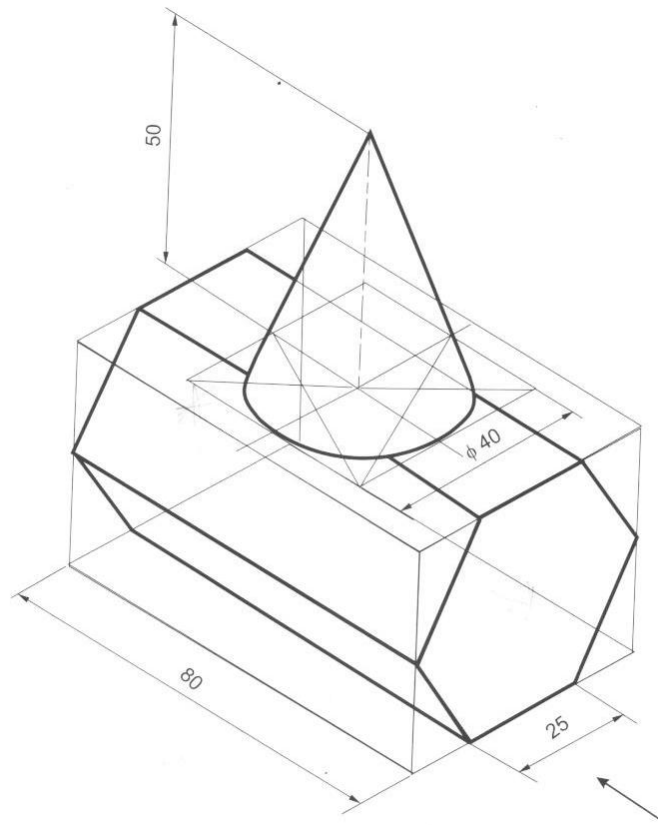
a) Axis of cone is perpendicular to HP, axis of prism is parallel to VP
b) Axis of cone is perpendicular to VP, axis of prism is parallel to HP
c) Axis of cone is perpendicular to HP, axis of prism is perpendicular to VP
d) Axis of cone is parallel to VP, axis of prism is perpendicular to HP

11.
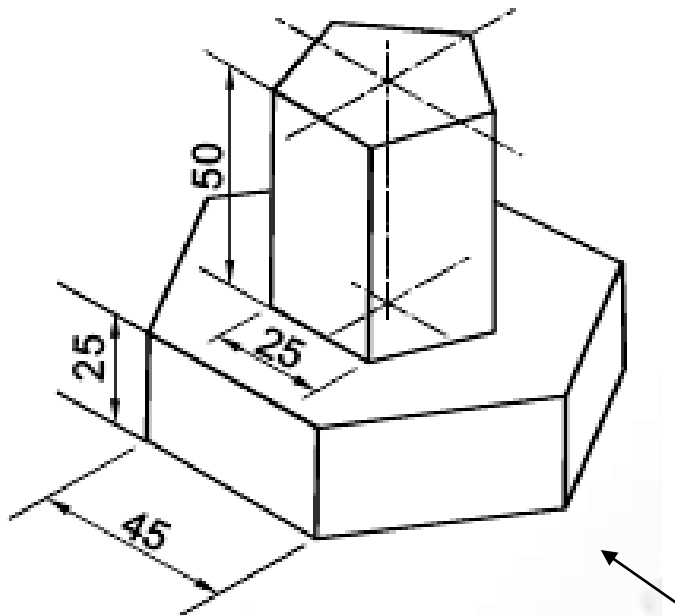
a) A pentagonal prism is resting on top of pentagonal disc. Axis of prism is parallel to VP and that of disc is perpendicular to VP.

b) A hexagonal prism is resting on top of hexagonal disc. Axis of prism is perpendicular to HP and that of disc is parallel to VP.

c) A hexagonal prism is resting on top of pentagonal disc. Axis of prism is parallel to VP and that of disc is perpendicular to HP.

d) A pentagonal prism is resting on top of hexagonal disc. Axis of prism is parallel to VP and that of disc is perpendicular to HP.

12.

Side = 34
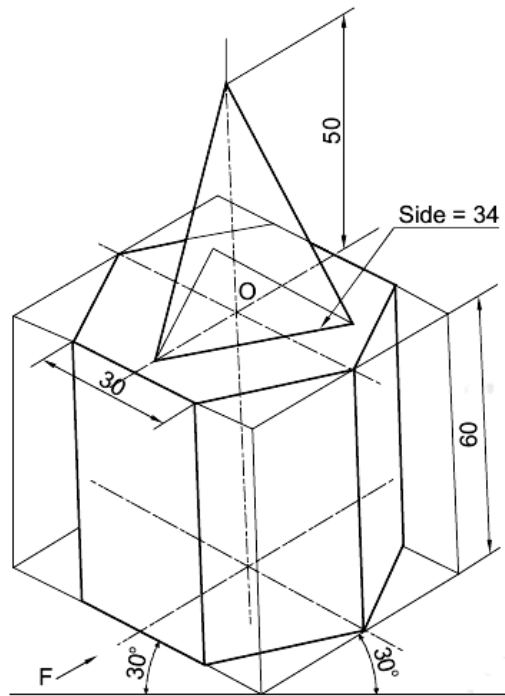
a) Two vertical prisms where one of the base edges of the prism at the rear is perpendicular to HP

b) Two vertical pyramids with one base edge of the pyramid is parallel to VP and nearer to it

c) Two vertical solids with one base edge of the pyramid away from observer and parallel to VP

d) Two horizontal solids with one base edge of the prism parallel to VP and nearer to it

13.
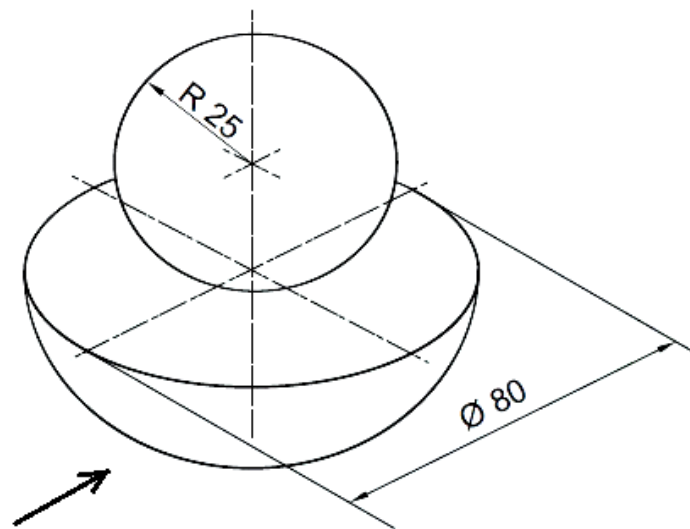
    a) The length of common axis is true 65mm

    b) The length of common axis is iso 65mm

    c) The length of common axis is more than iso 65mm

    d) The length of common axis is less than iso 65mm

14.
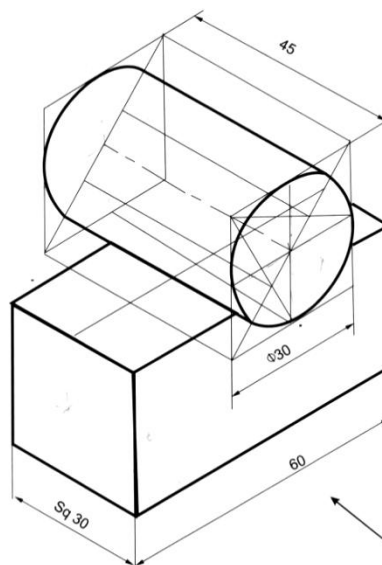
    a) A horizontal solid placed on a vertical solid

    b) A horizontal solid placed on a horizontal solid

    c) A vertical solid placed on a horizontal solid

d) A vertical solid placed on a vertical solid

SECTION – B

Q15 to Q 18 – Answer Read the following para and answer the following questions. 4 X 1 = 4

Two friends who are the students of class XII Engg. Graphics had to fix the problems in their bike during the summer vacation. While purchasing the spare parts at a machinery shop, they observed a machine part similar to bolt. They sent the following image of that machine part to their Engg. Graphics teacher. Then the teacher explained everything about that part, which is called as stud.

15. Which category does the stud belong to?
    a) Permanent fastner
    b) Permanent bearing
    c) Temporary fastener
    d) Temporary bearing

16. Stud is a
    a) Headless bolt
    b) Headless key
    c) Square headed bolt
    d) Hexagonal headed bolt

17. What is the outer diameter of the central portion of the above figure, take 'd' as the diameter of stud?
    a) 0.8 d

b) d

c) 1.1 d

d) 1.5 d

18. What is the length of the metal end of a stud with 20mm diameter?

a) 36mm

b) 32mm

c) 20mm

d) 16mm

Q.19 to Q.22 : Read the following paragraph and answer the questions given below: 4 X 1 = 4

Isometric projection is a powerful tool used in design and engineering to represent three-dimensional objects on a two-dimensional surface with accuracy. In a recent project, an architecture firm employed isometric projection to design a modern office space. By utilizing isometric drawings, they were able to create precise representations of the office layout, including furniture placement and spatial arrangements.

The firm presented the isometric drawings to their client, who was impressed by the clarity and detail provided. This visualization helped the client to better understand the proposed design, leading to quicker decision-making and ultimately a smoother project development process.

19. What is isometric projection primarily used for?

    a) Representing two-dimensional objects

    b) Representing three-dimensional objects

    c) Creating abstract art

    d) Creating animations

20. Which industry commonly utilizes isometric projection?

    a) Fashion

    b) Agriculture

    c) Engineering and design

    d) Healthcare

21. Why is isometric projection valuable in architectural design?

    a) It simplifies and helps in better visualization of complex parts of the project

    b) It provides two-dimensional multiple views

    c) It maintains accurate measurements of all dimensions

    d) It helps in cutting the cost by reducing the size

22. For drawing isometric projection of the project, the isometric dimensions will be

    a) Equal to true dimensions

    b) More than true dimensions

    c) Half of the true dimensions

    d) Equally foreshortened true dimensions

23. (A) Figure 1 shows the details parts of an Open Bearing. Assemble all the parts correctly and then draw to scale 1:1; it's following views:

    (a) Front View, right half in section   13

    (b) Top View   8

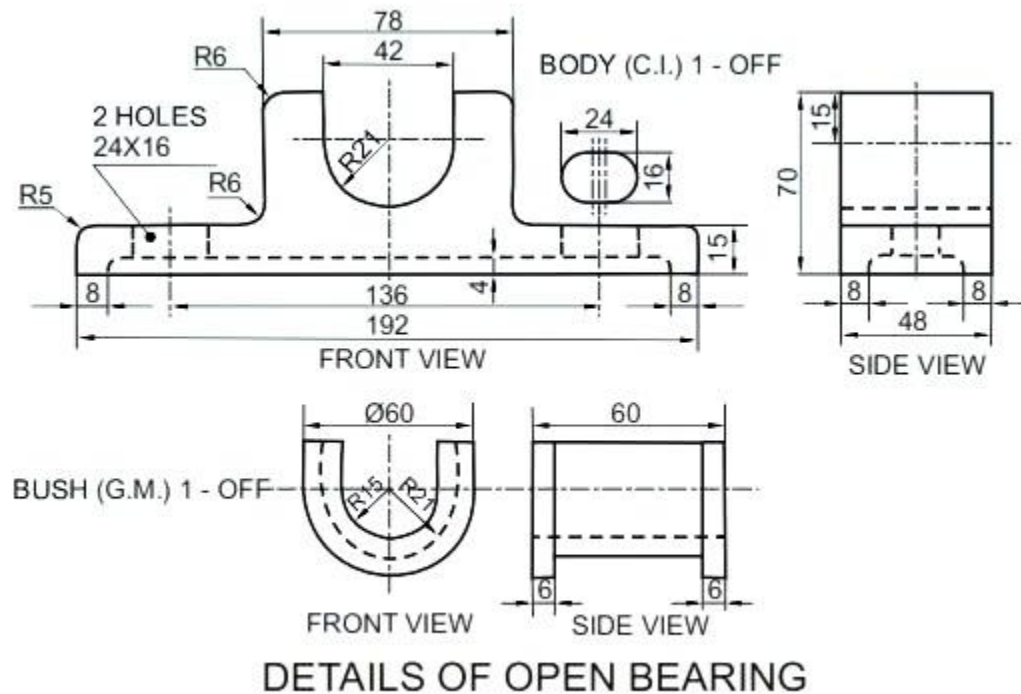   Print the title and scale used. Draw projection symbol. Give six important dimensions.   6

DETAILS OF OPEN BEARING

Figure 1

OR

23. (B) Figure 2 shows the assembly of a 'Gib and Cotter Joint'. Disassemble the parts correctly and then draw to scale 1:1 its following views of the following components. Keeping the same position with respect to H.P and V.P. as given:

    (a)   FORK END

        (i) Front View, Upper half in section   9
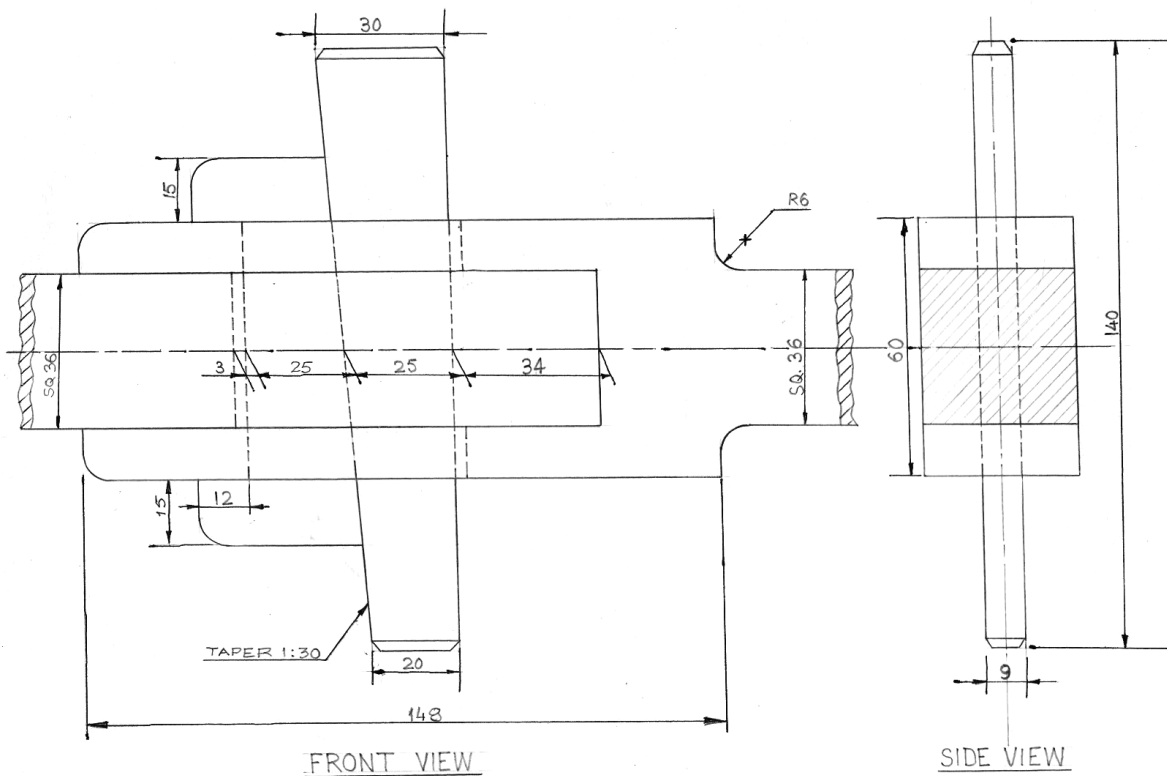
        (ii) Top View   6

    (b)   GIB

        (i) Front View.   4

        (ii) Side View.   2

    (c) Print the titles of both and scale used. Draw the projection symbol. Give six important dimensions.   6

30

15

SQ 36

3 25 25 34

R6

SQ.36

60

140

15 12

TAPER 1:30

20

148

9

FRONT VIEW

SIDE VIEW

GIB AND COTTER JOINT

Figure 2

SECTION – C

24.   (a) Construct an isometric scale.   5

(b) Draw the isometric projection of a pentagonal prism (base edge 30 mm, axial length 70mm) resting on its face with its axis parallel to H.P. and V.P. both. Indicate the direction of viewing. Give all the dimensions.   10

25.   (A)   Draw to scale 1:1, the standard profile of the **Metric thread profile (Internal)** with the pitch = 40mm. Give standard dimensions.   8

OR

25. (B) Draw to scale 1:1, the front view and top view of a square headed nut across flat, the diameter is given as 30 mm. The axis of the nut is vertical. Give the standard dimensions. 8