QUESTION BANK

CLASS – XII

ENGINEERING GRAPHICS (CODE: 046)

Note:

- This question bank is the collection of all questions asked in following CBSE Board examination:
    1. CBSE Board Examination – 2025 (Main)
    2. CBSE Board Examination – 2025 (Compartment)
    3. CBSE Board Examination – 2024 (Main)
    4. CBSE Board Examination – 2023 (Main)
    5. CBSE Board Examination – 2023 (Compartment)
    6. CBSE Board Examination – 2022 (Term-2)
- This question bank is prepared by keeping in mind the current CBSE/DoE syllabus and present blue print.

  https://cbseacademic.nic.in/web_material/CurriculumMain26/SrSec/Engineering_Graphics_SrSec_2025-26.pdf
- Some of the questions are updated based on the correct marking scheme or any possible printing error.
- Questions from current syllabus are incorporated rest are discarded.
- Also, questions of current formats in use are incorporated rest formats are discarded.
- For Previous year paper and their marking scheme, click on the following link:

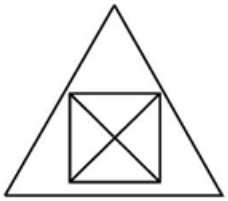
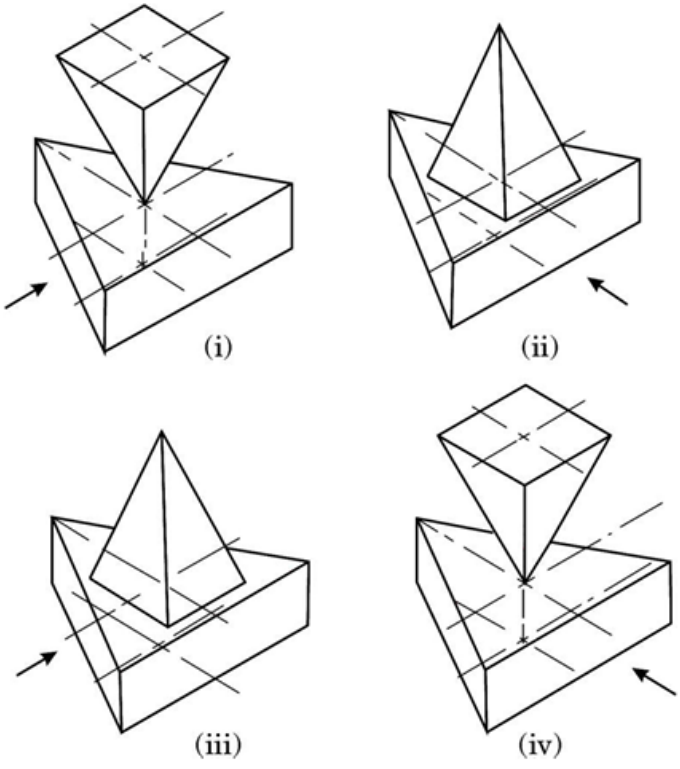
  https://www.cbse.gov.in/cbsenew/question-paper.html
- For CBSE Sample Paper and their marking scheme, click on the following link:

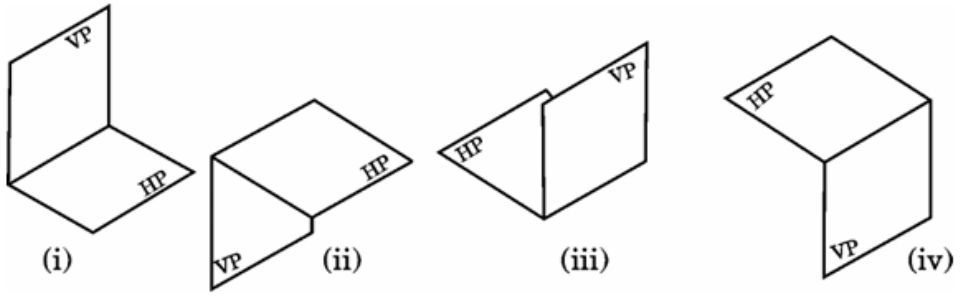
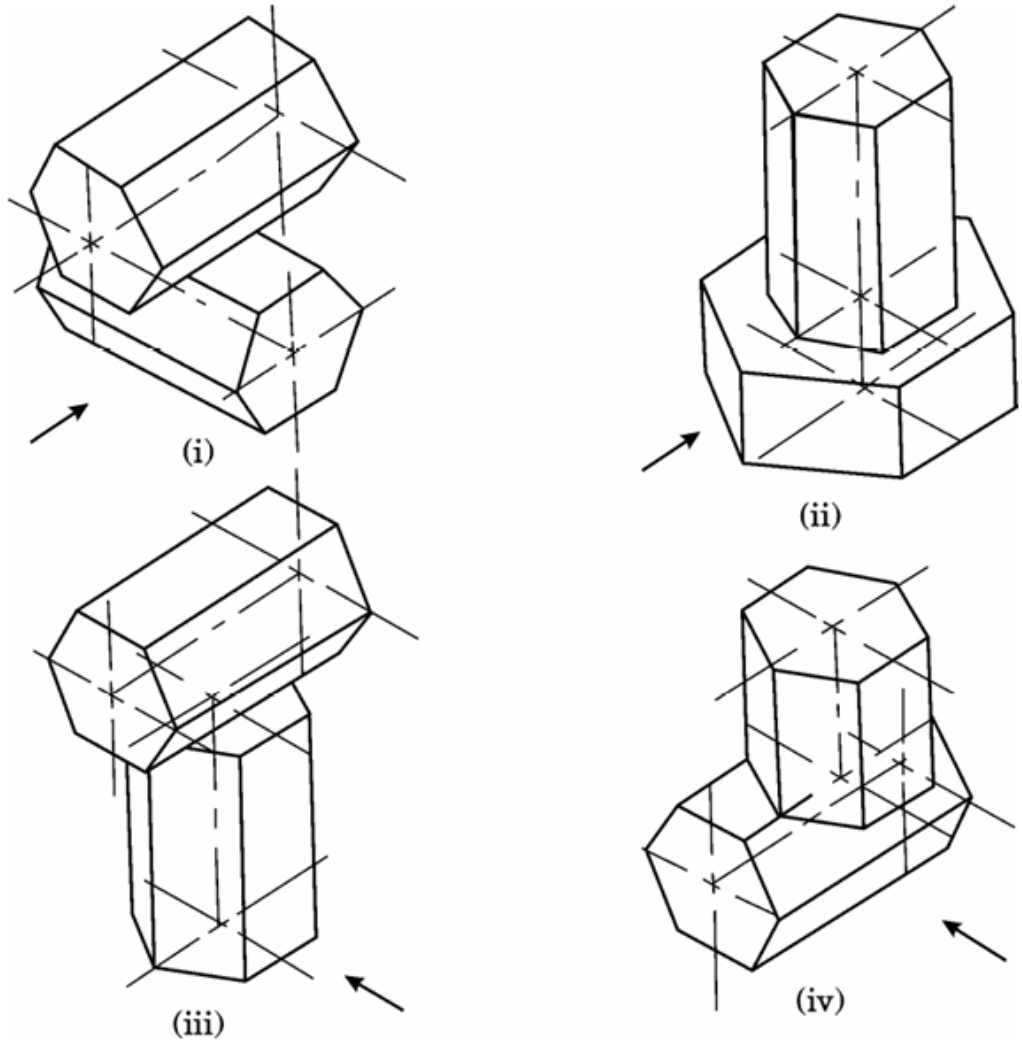
  https://cbseacademic.nic.in/SQP_CLASSXII_2025-26.html
- For DoE, Sample Paper and their marking scheme, click on the following link:

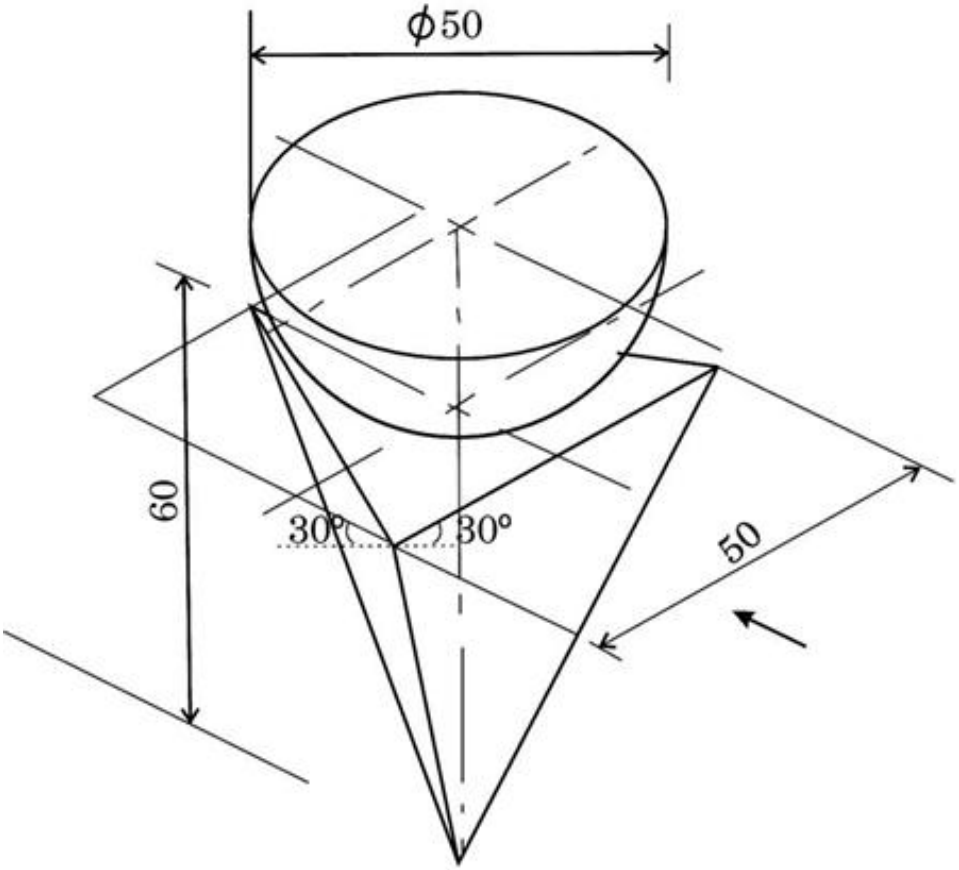
  https://edustud.nic.in/edu/annualPracticePaper25_26.html
- Book: A textbook On Engineering Graphics, Class – XII (Edition – 2019):

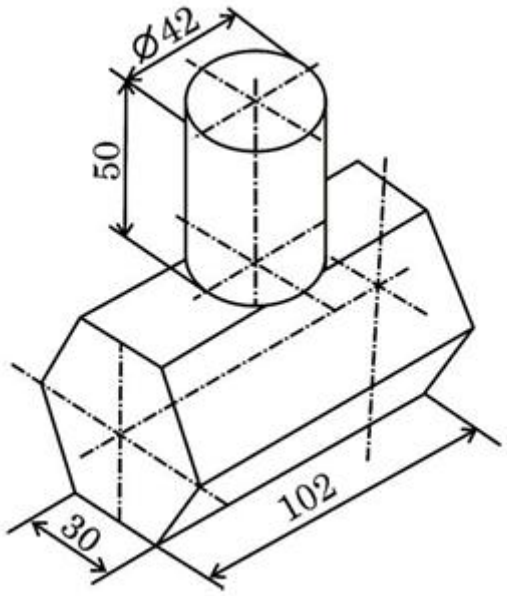
  https://cbseacademic.nic.in/web_material/doc/Engineering_Graphics_ClassXII.pdf

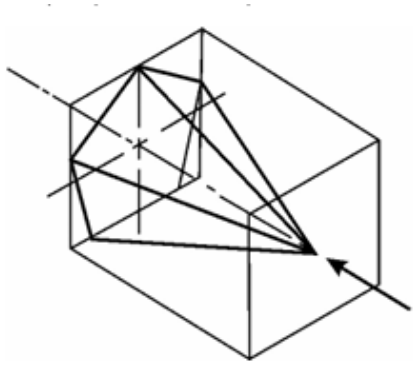
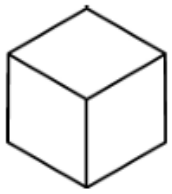
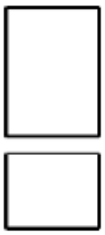
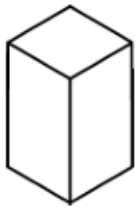
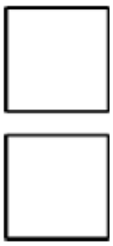
UNIT – 1 (ISOMETRIC PROJECTION OF SOLIDS)

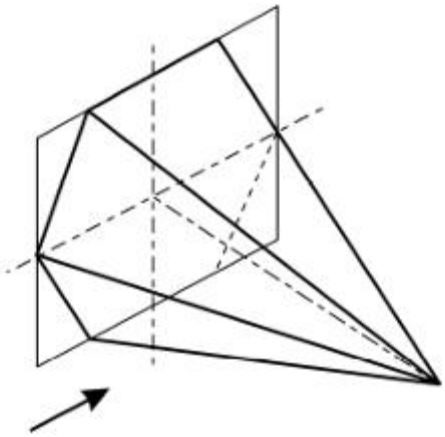
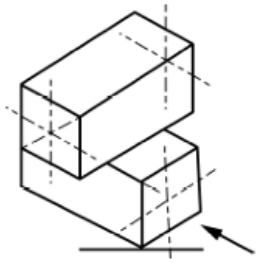
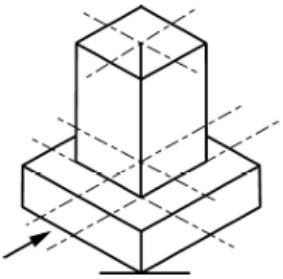
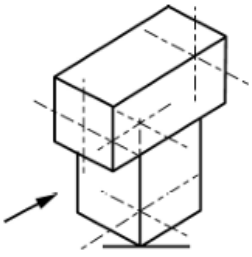
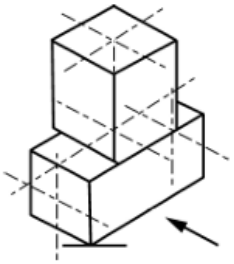
	< 1 > MARK QUESTIONS	MAIN/ COMPTT.
1	Leader line is: (A) an inclined line followed by a horizontal line (B) a line that is used where outline is not visible at viewing surface (C) an inclined line followed by an inclined line (D) a line that is similar to axis line but thick at ends	2025 (Comp.)
2	In sectional projection of solids, the section plane indicates where: (A) the projection takes place. (B) the imaginary cutting takes place. (C) the development of surfaces takes place. (D) the direction of viewing takes place.	2025 (Comp.)
3	 TOP VIEW The above given top view corresponds to :  (i) (ii) (iii) (iv) (A) (i) (B) (ii) (C) (iii) (D) (iv)	2025 (Comp.)

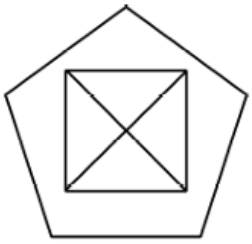
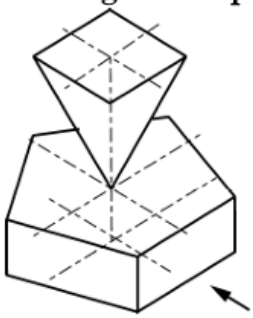
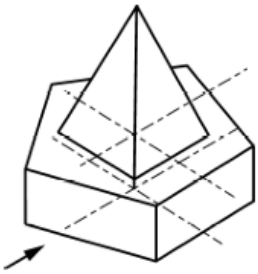
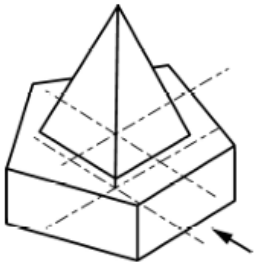
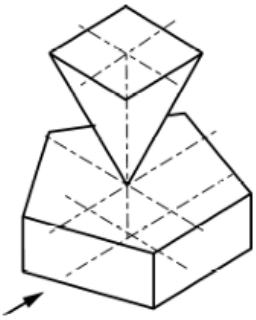
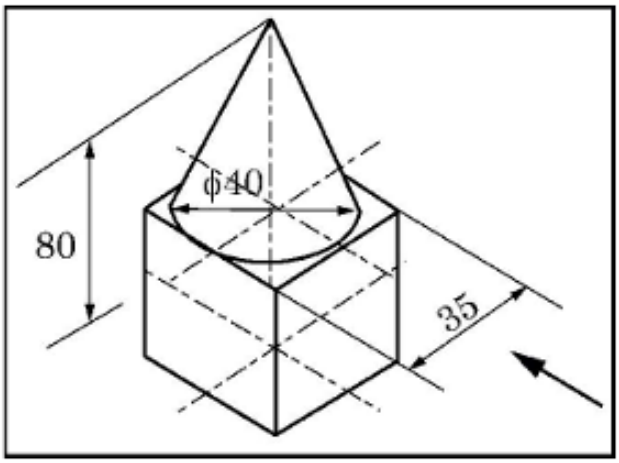
4	Which among the following is a depiction of first quadrant?  (A) (i) (B) (ii) (C) (iii) (D) (iv)	2025 (Comp.)
5	Identify the correct figure which represents the isometric projection of a horizontal hexagonal prism placed on a vertical hexagonal prism.  (A) (i) (B) (ii) (C) (iii) (D) (iv)	2025 (Comp.)

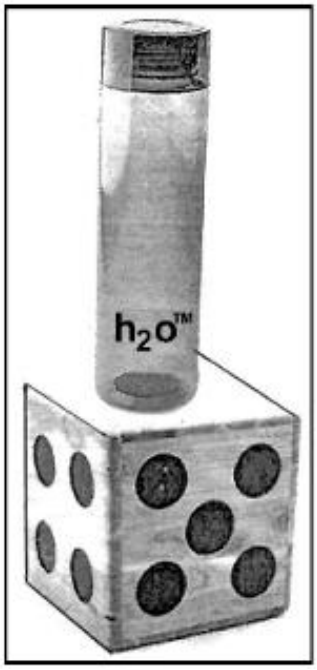
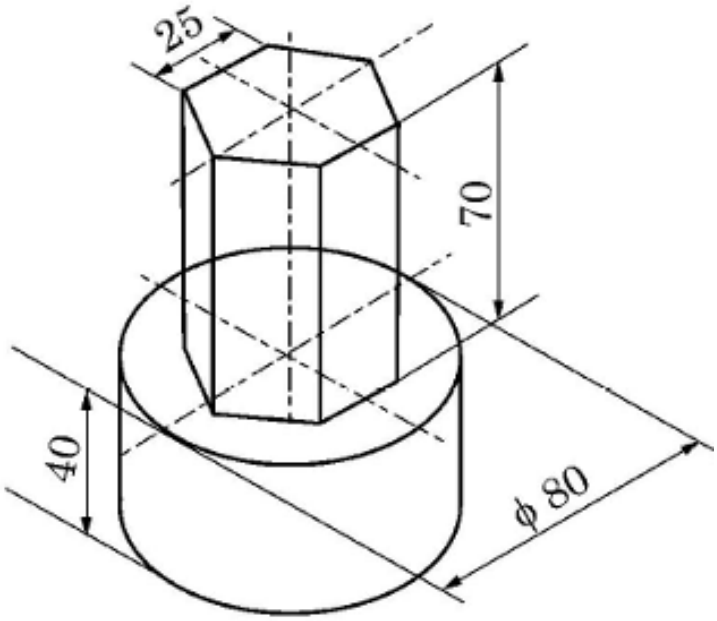
6	Identify the correct statements for the isometric projection of the combination of solids given below:  (i) A hemisphere is resting on its flat circular face on the top triangular face of a pyramid. (ii) A hemisphere is resting on its curved surface on the top triangular face of a pyramid. (iii) The axis is not common for both solids. (iv) The axis of both solids is common and vertical. **Options:** (A) (iii) and (iv) only (B) (i) and (iii) only (C) (ii) and (iv) only (D) (i) and (ii) only	2025 (Comp.)
7	The front view of a vertical cone resting on its base on H.P. will be _____. (a) a triangle (b) a rectangle (c) a circle (d) a semicircle	2023 (Main)

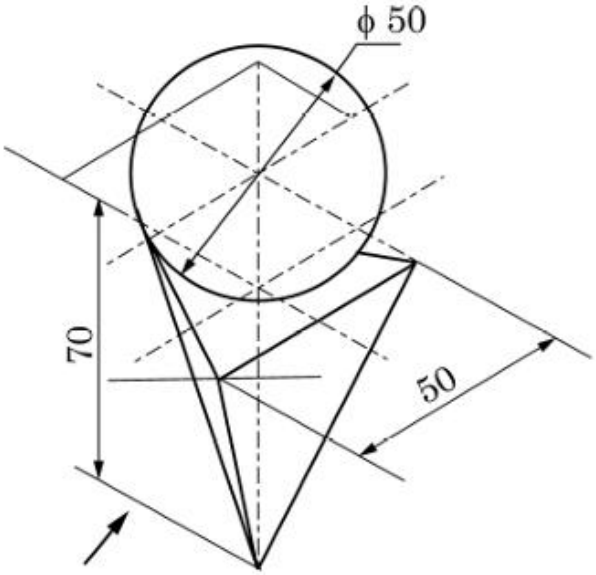
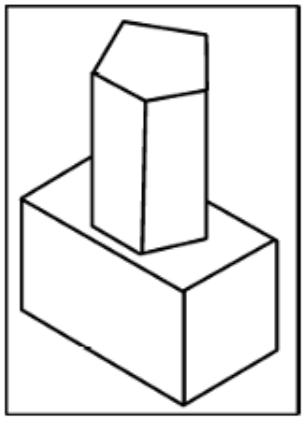
8	Match List-I with List-II for the given isometric projection of combination of solids:  **List – I** / **List – II** a – Axis of bottom solid – i – 30 mm b – Axis of top solid – ii – 42 mm c – Base edge of bottom solid – iii – Vertical d – Base diameter of top solid – iv – Horizontal **Options:** (A) a-iv, b-i, c-iii, d-ii (B) a-iii, b-iv, c-ii, d-i (C) a-i, b-ii, c-iii, d-iv (D) a-iv, b-iii, c-i, d-ii	2025 (Comp.)
9	Lines composed of closely and evenly spaced short dashes, in a drawing, represent (A) Visible edges (B) Hidden edges (C) Hatching (D) Pitch circle	2025 (Main)

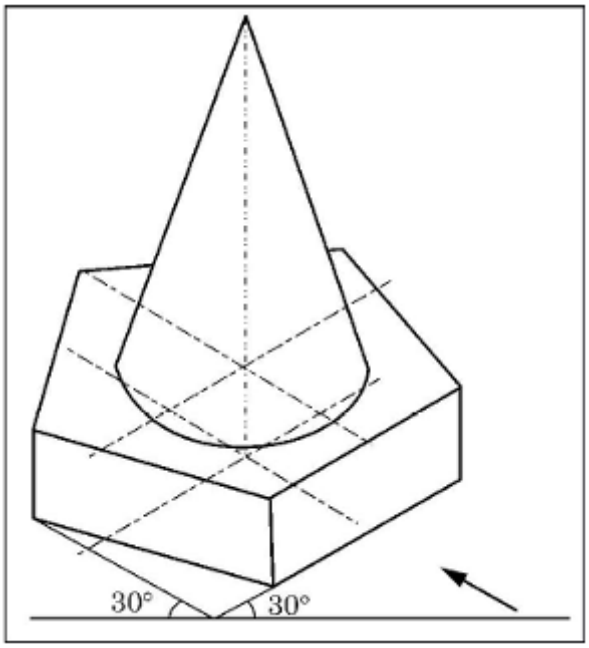
10	Select the correct statements for the given figure.  (i) A horizontal pyramid is placed with its axis parallel to both H.P. and V.P. (ii) The solid has five triangular faces in total. (iii) A horizontal pyramid is placed with its axis perpendicular to V.P. (iv) It is an example of solid of revolution. **Options:** (A) (ii) and (iii) only (B) (i) and (iii) only (C) (ii) and (iv) only (D) (i) and (iv) only	2025 (Comp.)
11	Sectioning of objects helps the engineers in clarifying _____ (A) The outlook of a complicated object (B) The interior details of a simple object (C) The interior details of a complicated object (D) The surface of a simple object	2025 (Main)
12	Orthographic projection of a cube as shown is: (i)  (ii)  (iii)  (iv)  (A) (i) (B) (ii) (C) (iii) (D) (iv)	2025 (Main)

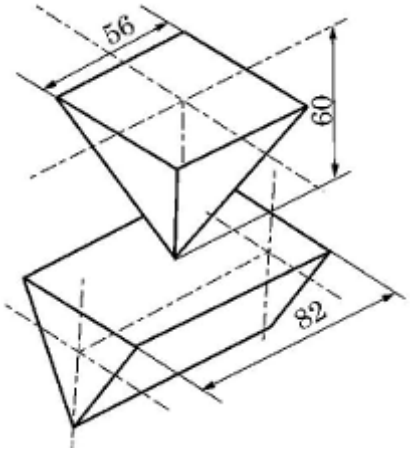
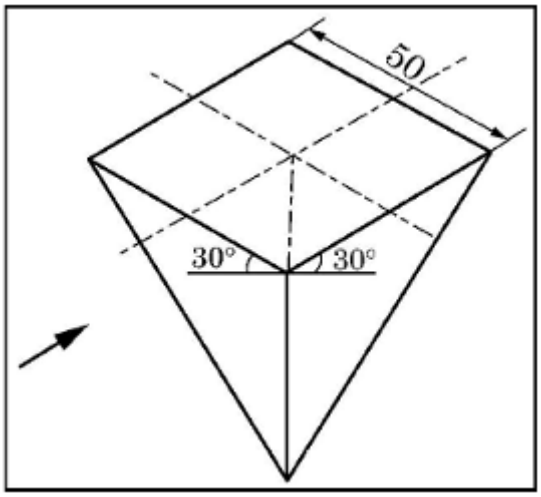
13	Select the correct statements for the given figure:  (i) A horizontal pyramid is placed with its axis parallel to both H.P. and V.P. (ii) The solid has three triangular faces in total. (iii) A horizontal pyramid is placed with its axis perpendicular to V.P. (iv) It is an example of polyhedron. **Options:** (A) (i) & (iv) only (B) (ii) & (iv) only (C) (i) & (iii) only (D) (ii) & (iii) only	2025 (Main)
14	Identify the correct figure which represents the isometric projection of a vertical square prism placed on a horizontal square slab. (i)  (ii)  (iii)  (iv)  (A) (i) (B) (ii) (C) (iii) (D) (iv)	2025 (Main)

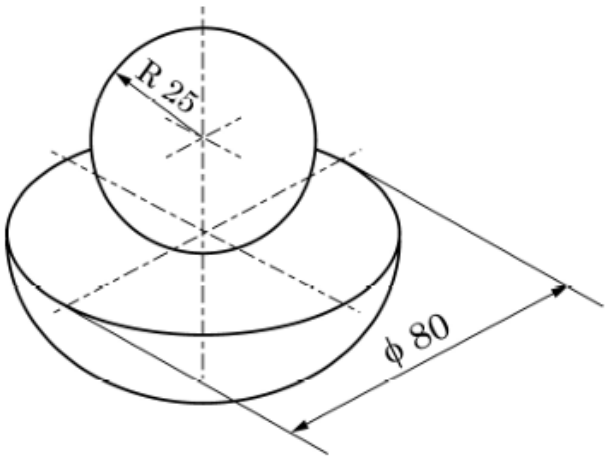
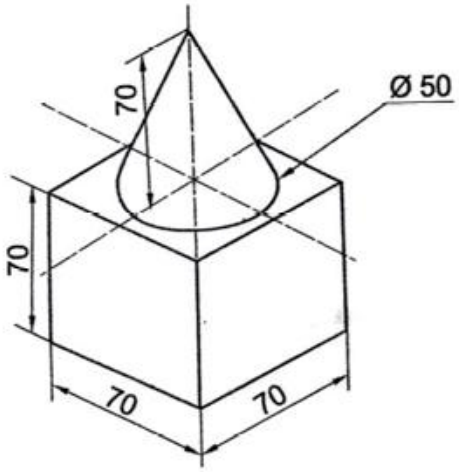
15	 Top View The above given top view corresponds to (i)  (ii)  (iii)  (iv)  (A) (i) (B) (ii) (C) (iii) (D) (iv)	2025 (Main)
16	Select the correct option corresponding to the orientation of the given isometric projection:  (a) A cube is placed on a cone. (b) A cone is placed on a cube. (c) The axis of both the solids are vertical. (d) Both (b) and (c)	2023 (Main)

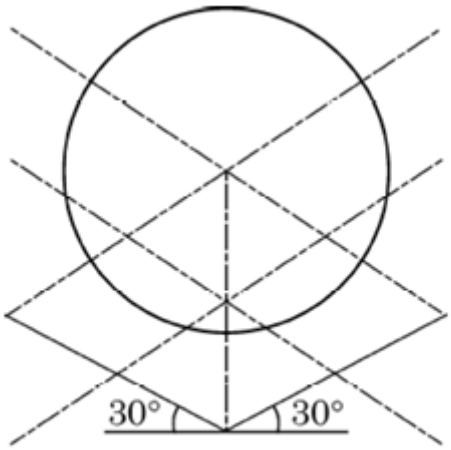
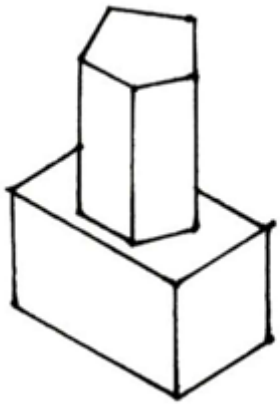
17	If a water bottle is placed on a dice stool, as shown below, what would it look like?  (a) A cylinder on a sphere (b) A cylinder on a cube (c) A cone on a sphere (d) A cone on a cube	2023 (Main)
18	Select the correct option corresponding to the orientation of the given isometric projection.  (a) The axis of the top solid is horizontal. (b) The axis of bottom solid is horizontal. (c) The common axis is vertical. (d) The common axis is horizontal.	2023 (Main)

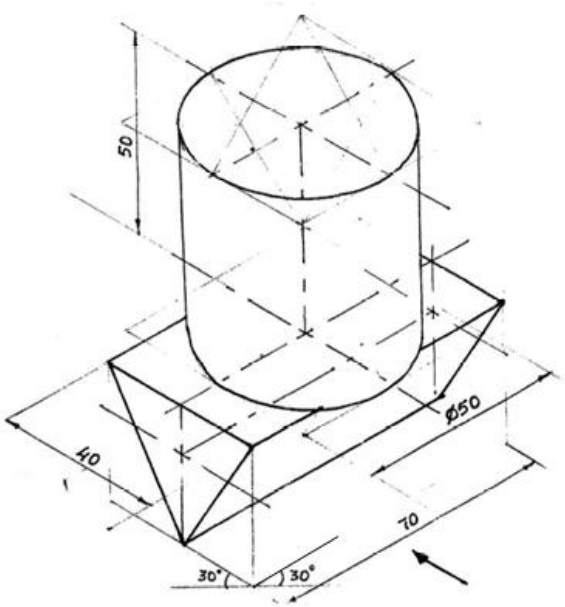
19	Select the correct option for the isometric projection of combination of solids.  (i) The axis of pyramid is parallel to H.P. and one of its base edges is perpendicular to H.P. (ii) A sphere of diameter 70 mm is placed on the top face of a prism. (iii) The axis of pyramid is parallel to V.P. and one of its base edges is perpendicular to V.P. (iv) The axis of prism is perpendicular to V.P. and one of its base edges is parallel to H.P. **Options:** (A) (i) & (iv) only (B) (iii) & (iv) only (C) (ii) & (iii) only (D) (i) & (ii) only	2025 (Main)
20	Total No. of rectangular surfaces in the fig. is:  (A) Six (B) Eight (C) Nine (D) Zero	2023 (Main)

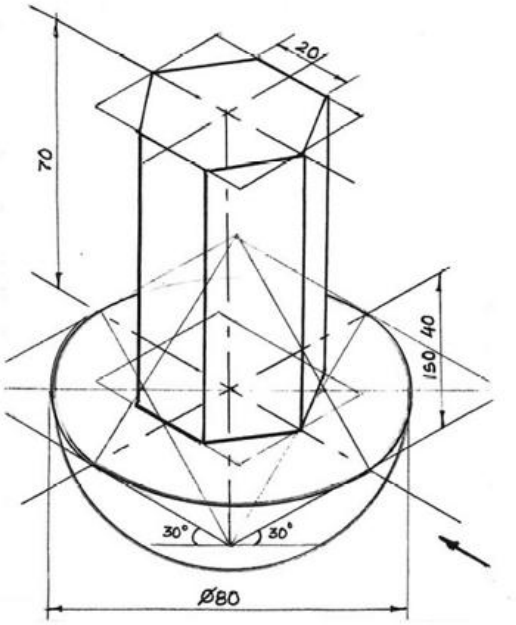
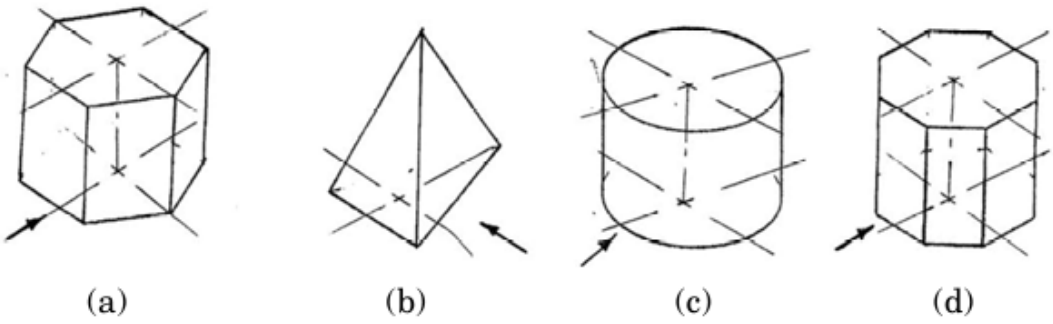
21	Select the correct option corresponding to the orientation of the given isometric projection.  (i) A cone is kept on a pentagonal slab when one of the base edges of the prism parallel to VP and nearer the observer. (ii) A cone is kept on a pentagonal prism when one of its base edges parallel to VP and away from the observer. (iii) A cone is kept on a pentagonal pyramid when one of the base vertices of the pyramid is at the rear. (iv) A cone is kept on a pentagonal prism when one of the base vertices of the prism is at the rear. **Options:** (a) (ii) and (iv) only (b) (ii) and (iii) only (c) (i) and (iv) only (d) (i) and (iii) only	2023 (Main)
22	If a cube is placed on one of its corners on the ground with a solid diagonal perpendicular to the V.P., then _____ will be the projected view of the cube. (a) the right side view (b) the left side view (c) the front view (d) the top view	2023 (Main)

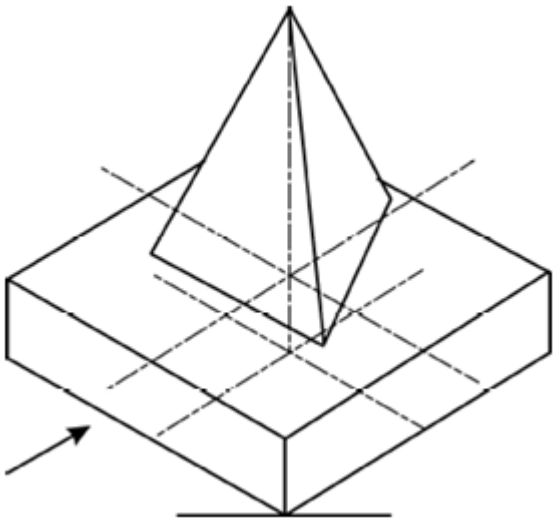
23	Select the correct option corresponding to the orientation of the given isometric projection.  (i) Both the solids are triangular pyramids. (ii) Both the solids are triangular prisms. (iii) Bottom solid is a triangular prism and the top solid is a square pyramid. (iv) Bottom solid is a triangular pyramid and the top solid is a triangular prism. **Options:** (a) (iii) only (b) (i) and (iii) only (c) (i) only (d) (ii) and (iv) only	2023 (Main)
24	Select the correct option corresponding to the orientation of the given isometric projection.  (A) The solid is resting with its base when its axis is parallel to VP. (B) The solid is resting on its apex when its axis is perpendicular to VP. (C) The solid is resting on its apex when its axis is parallel to VP. (D) The solid is resting with its base when its axis is perpendicular to VP.	2023 (Main)

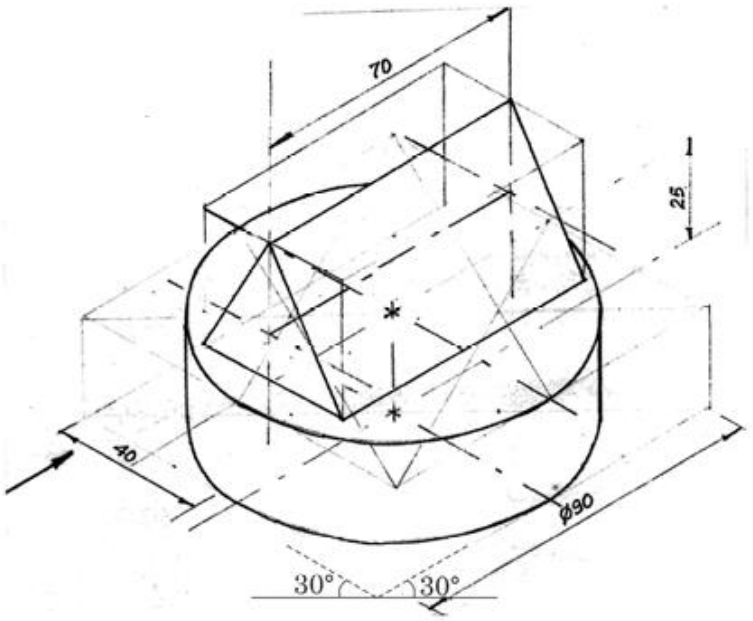
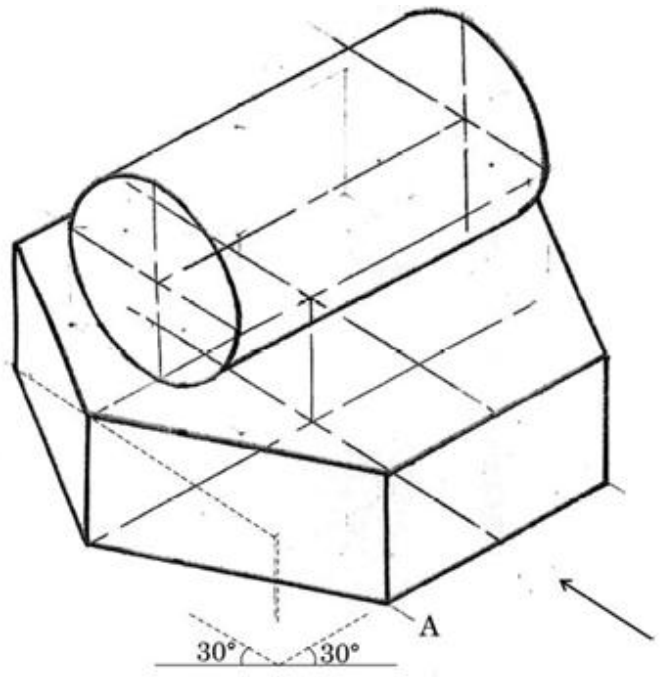
25	Match the List-I with List-II for the given isometric projection of combination of solids:  **List – I**: (1) Axis of bottom solid; (2) Axis of top solid; (3) Base edge of bottom solid; (4) Base diameter of top solid **List – II**: (i) 30 mm; (ii) 42 mm; (iii) Vertical; (iv) Horizontal **Options:** (A) (1)-(ii), (2)-(i), (3)-(iv), (4)-(iii) (B) (1)-(i), (2)-(ii), (3)-(iii), (4)-(iv) (C) (1)-(ii), (2)-(i), (3)-(iii), (4)-(iv) (D) (1)-(i), (2)-(ii), (3)-(iv), (4)-(iii)	2025 (Main)
26	Select the correct option corresponding to the orientations of the given Isometric projection:  (a) A cube is placed on a cone (b) A cone is placed on a cube (c) Common axis of both the solids are horizontal (d) A cube is placed on a rectangular prism	2023 (Comp.)

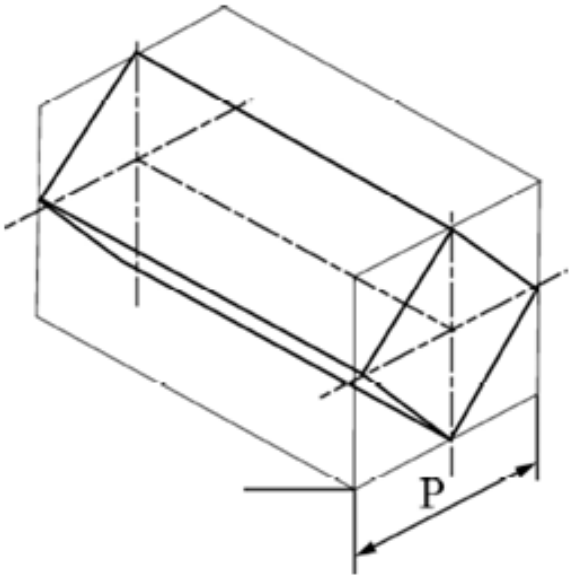
27	Select the correct statements for the given figure:  **Isometric Projection** (i) The diameter of sphere in isometric projection, is foreshortened. (ii) The isometric projection of sphere is a circle. (iii) The isometric projection of sphere is an ellipse. (iv) The diameter of sphere in isometric projection remains same. **Options:** (A) (i) and (iv) only (B) (ii) and (iv) only (C) (i) and (iii) only (D) (ii) and (iii) only	2024 (Main)
28	The total number of rectangular surfaces in this combination of solids is:  (a) Six (b) Four (c) Nine (d) Eleven	2023 (Comp.)

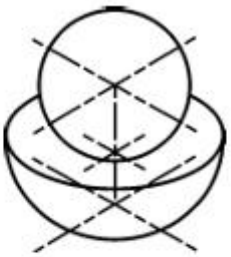
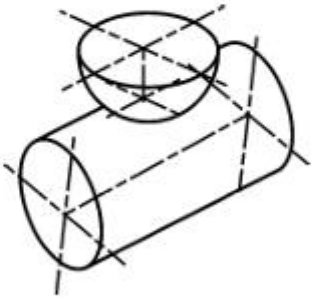
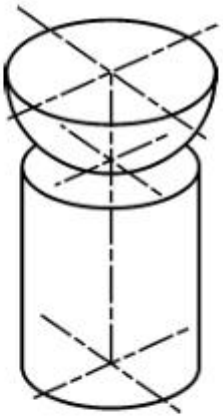
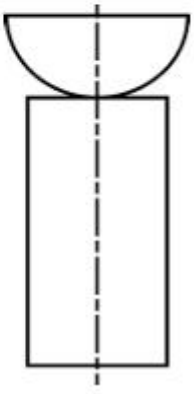
29	_____ are used to attain the uniform height of letters in technical writing. (a) Centre lines (b) Dash lines (c) Axis lines (d) Guide lines	2023 (Main)
30	Select the correct option corresponding to the orientations of the given Isometric projection:  (a) A cylinder is placed centrally on the top triangular face of a triangular prism. (b) A cylinder is placed centrally on the top rectangular face of a triangular prism. (c) A triangular prism is placed centrally on the top of a cylinder. (d) The axis of both the solids are common.	2023 (Comp.)
31	The most important point of isometric projection is that it needs _____ to measure along each of the three axes. (a) a single arc (b) double arcs (c) a single scale (d) double scales	2023 (Main)

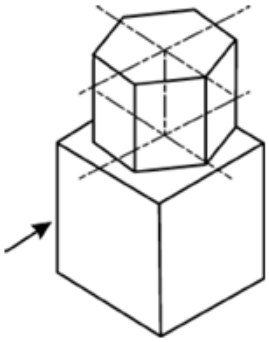
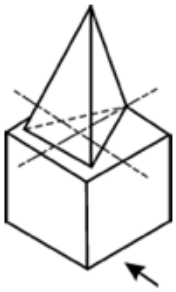
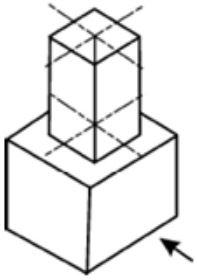
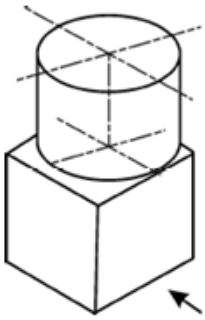
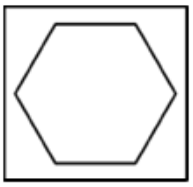
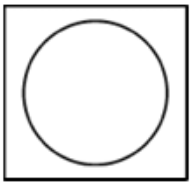
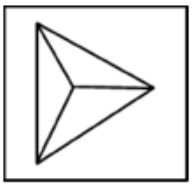
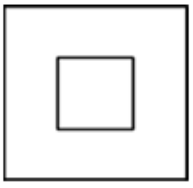
32	Select the correct option corresponding to the orientations of the given Isometric projection:  (a) A horizontal hexagonal prism is placed on top of a hemisphere, when two of its hexagonal ends perpendicular to VP. (b) A horizontal hexagonal prism is placed on top of a hemisphere, when the hemisphere is resting on its circular face on HP. (c) A vertical hexagonal prism is placed on top of a hemisphere, when the hemisphere is resting on its flat surface on HP. (d) A vertical hexagonal prism is placed on top of a hemisphere, when the hemisphere is resting on its curved surface on HP.	2023 (Comp.)
33	Select the solid which is not a polyhedron.  (a) (b) (c) (d)	2023 (Comp.)

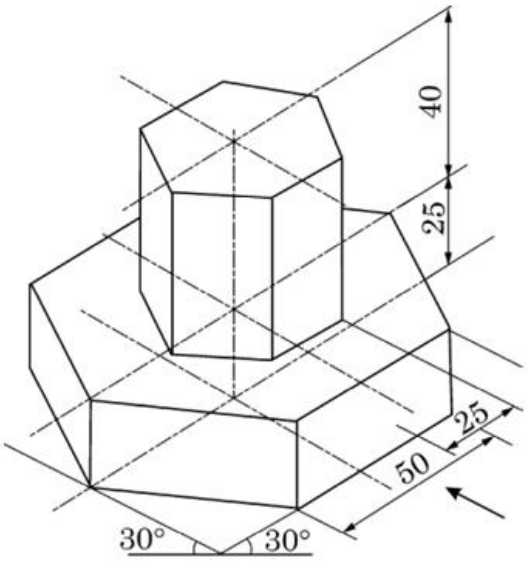
34	Select the correct statement/s for the given isometric projection of combination of solids:  (i) The solids are kept in such a way that one of the base edges of the prism and two of the base edges of the pyramid are parallel to V.P. (ii) The solids are kept in such a way that one of the base edges of the prism and two of the base edges of the pyramid are perpendicular to V.P. (iii) The solids are kept in such a way that two of the parallel base edges of prism and one of the base edges of pyramid are perpendicular to V.P. (iv) The solids are kept in such a way that two of the parallel base edges of prism and one of the base edges of pyramid are parallel to V.P. **Options:** (A) (i) and (ii) only (B) (iii) only (C) (iv) only (D) (ii) and (iv) only	2024 (Main)
35	Other than the first angle method of orthographic projection, _____ method of projection can also be used in Engineering Drawing practices. (A) fifth angle (B) fourth angle (C) third angle (D) second angle	2023 (Comp.)

36	Select the correct option corresponding to the orientations of the given Isometric projection:  (a) Bottom solid is vertical and the top solid is horizontal (b) Bottom solid is horizontal and the top solid is vertical (c) Both the solids are horizontal (d) Both the solids are vertical	2023 (Comp.)
37	The name of the bottom solid is:  (a) Pentagonal prism (b) Hexagonal prism (c) Pentagonal lamina (d) Hexagonal lamina	2023 (Comp.)

38	In isometric projection, how many scales are needed to measure along each of the three isometric axes? (a) 4 (b) 3 (c) 2 (d) 1	2023 (Comp.)
39	Select the correct statements, regarding the value of 'P' in the given isometric projection.  (i) 'P' is equal to the given length of the prism. (ii) 'P' is not equal to the given end edge of the prism. (iii) 'P' will be obtained from the orthographic help view. (iv) 'P' can be assumed as any numeral. **Options:** (A) (i) and (ii) only (B) (i) and (iii) only (C) (ii) and (iii) only (D) (ii) and (iv) only	2024 (Main)
40	The three forms of pictorial projection are (A) oblique, perspective and linear (B) axonometric, oblique and perspective (C) perspective, linear and skewed (D) axonometric, offset and co-ordinate	2024 (Main) 2023 (Comp.)

41	A hemisphere placed on top of a vertical cylinder. Select the correct option which represents the isometric projection. (i)  (ii)  (iii)  (iv)  (A) (i) (B) (ii) (C) (iii) (D) (iv)	2024 (Main)

42	Match the List – I with List – II : **List – I** **Isometric projection of solids** 1.  2.  3.  4.  **List – II** **Top view in orthographic projection (Figure not to scale)** (i)  (ii)  (iii)  (iv)  **Options:** (A) (1)-(i), (2)-(iii), (3)-(ii), (4)-(iv) (B) (1)-(ii), (2)-(iv), (3)-(iii), (4)-(i) (C) (1)-(ii), (2)-(i), (3)-(iv), (4)-(iii) (D) (1)-(i), (2)-(iii), (3)-(iv), (4)-(ii)	2024 (Main)

43	Match the List – I with List – II for the given isometric projection of combination of solids:  **List – I** (1) Total number of hexagonal faces (2) Total number of rectangular faces (3) Bases of both solids (4) Axes of both solids **List – II** (i) Perpendicular to V.P. (ii) Perpendicular to H.P. (iii) Twelve (iv) Four **Options:** (A) (1)-(iv), (2)-(iii), (3)-(i), (4)-(ii) (B) (1)-(iii), (2)-(iv), (3)-(ii), (4)-(i) (C) (1)-(ii), (2)-(i), (3)-(iii), (4)-(iv) (D) (1)-(i), (2)-(ii), (3)-(iv), (4)-(iii)	2024 (Main)
44	If an isometric drawing is made by use of isometric scale then the drawing is called. (A) Isometric view (B) Isometric projection (C) Orthographic view (D) Sectional view	2024 (Main)
45	In orthographic projection, if an object lies in second quadrant, its position with respect to reference planes will be (A) in front of V.P. and below H.P. (B) behind V.P. and above H.P. (C) in front of V.P. and above H.P. (D) behind V.P. and below H.P.	2024 (Main)

46	The isometric view is the drawing with _____. (A) Reduced scale (B) Actual scale (C) Vernier scale (D) Isometric scale	2024 (Main)
	<1> MARK QUESTIONS – CASE STUDY BASED	
	(Q47 to Q50) Read the following paragraph and answer the questions given below:  The given image is a jewellery box. Assuming it comprises two parts, viz. bottom cylindrical portion and a top portion as a conical lid with a small handle on it. Assume that the diameter of the bottom cylindrical portion is 200 mm and its height is 140 mm. The axial height of conical lid is 60 mm.	2025 (Comp.)
47	The 3D projection method that is used in the design process of this product is: (A) Perspective projection (B) Multiview projection (C) Orthographic projection (D) Isometric projection	2025 (Comp.)
48	If a straight line rotates about another fixed straight-line, keeping the angle between the two lines constant, the rotating line generates a _____ surface. (A) Spherical (B) Conical (C) Hemispherical (D) Helical	2025 (Comp.)
49	The total height in true scale, of the jewellery box excluding handle at the top is: (A) 100 mm (B) 160 mm (C) 200 mm (D) 260 mm	2025 (Comp.)

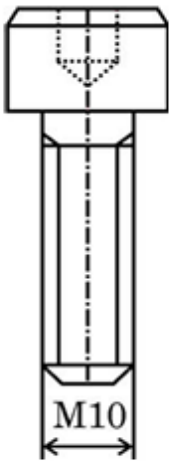
50	The capacity of the jewellery box, excluding the lid portion is _____. (Hint: Volume of cylinder = $\pi r^2 h$) (A) 4400 cm^3 (B) 3500 cm^3 (C) 1000 cm^3 (D) 2600 cm^3	2025 (Comp.)
	Q.51 to Q.54: Read the following paragraph and answer the questions given below: The given image is a fire-extinguisher. It is made up of a bigger cylindrical tank with a hemispherical portion on it. A very small cylindrical portion at the top has a valve assembly and a hose. Assume that the diameter of the hemispherical portion as 140 mm and height of the bottom cylindered portion as 350 mm. 	2025 (Main)
51	The projections used in the design of this product: (A) Perspective & oblique (B) Isometric & orthographic (C) Perspective & axonometric (D) Oblique & multiview	2025 (Main)
52	Cylinder and hemisphere are examples of: (A) Solids of revolution (B) Tetrahedron (C) Solids of sectioning (D) Polyhedron	2025 (Main)

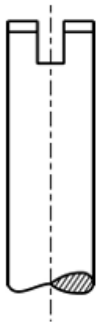
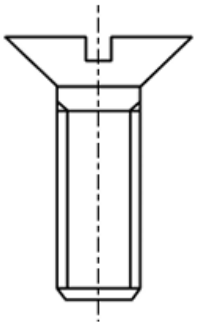
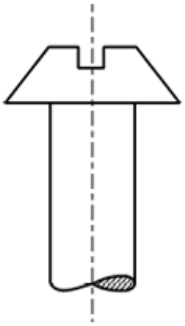
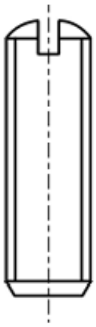
53	Total height in true scale excluding top valve assembly: (A) 36 mm (B) 420 mm (C) 140 mm (D) 350 mm	2025 (Main)
54	If a label is pasted on the curved surface of the cylinder portion, total surface area used is: (Hint: Lateral area = $2\pi rh$) (A) 770 cm^2 (B) 1400 cm^2 (C) 3500 cm^2 (D) 1540 cm^2	2025 (Main)
	< 4 > MARK QUESTIONS	
55	Construct an isometric scale.	2025-M 2025-C 2024-M 2023-M 2023-C
	< 9 > MARK QUESTIONS	
56	Draw the isometric projection of a hexagonal prism (base edge 20 and length 60 mm) placed with one of its long edges on H.P. Its axis is perpendicular to V.P. Indicate the direction of viewing. Give all dimensions.	2025 (Comp.)
57	Draw the isometric projection of a triangular prism (base edge 35 mm, length 60 mm). It is placed on H.P. with one of its long edges and its axis is perpendicular to V.P. Indicate the direction of viewing. Give all the dimensions.	2025 (Main)
58	Draw the isometric projection of a pentagonal prism (base edge 25 mm, height 50 mm) is resting on its base on H.P. One of its base edges is parallel to V.P. and away from it. The axis is parallel to V.P. and perpendicular to H.P. Indicate the direction of viewing. Give all the dimensions.	2024 (Main)
59	A vertical pentagonal pyramid (base edge 30 mm, height 60 mm) standing on its apex on H.P. One of its pentagonal edge is perpendicular to V.P. Draw its isometric projection. Give all the dimensions and indicate the direction of viewing.	2023 (Main)
60	A vertical triangular pyramid of base edge 40 mm and 60 mm height is standing on its apex on HP. One of its triangular edges is perpendicular to VP. Draw its Isometric Projection. Give all the dimensions and indicate the direction of viewing.	2023 (Comp.)

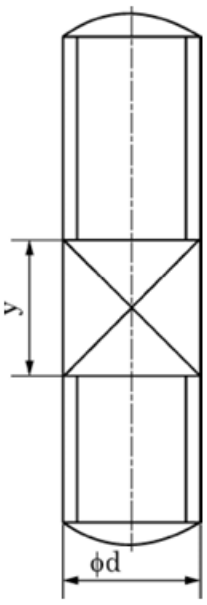
UNIT – 2 (MACHINE DRAWING (A – DRAWING OF MACHINE PARTS))

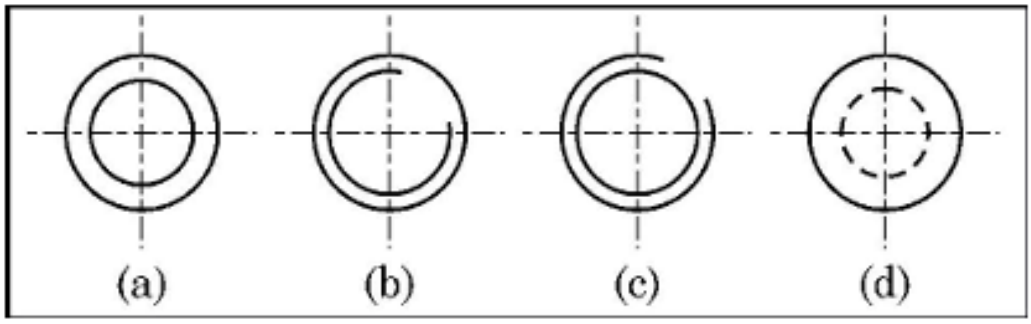
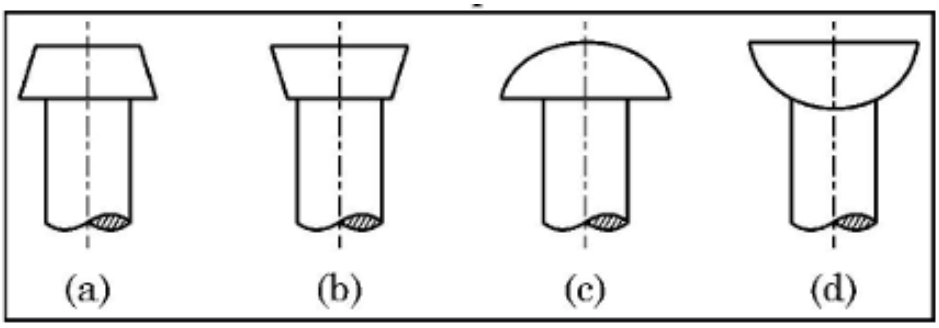
	< 1 > MARK QUESTIONS	MAIN/ COMPTT.
1	Choose the correct option regarding screw threads: (i) A screw thread formed on the surface of a cylinder is known as taper thread. (ii) In single-start thread, Lead = 2P. (iii) In the practical use of the threads, clearance must be provided between the external and internal threads. (iv) Root is the edge of the thread surface closest to the axis in case of single thread. **Options:** (A) (i) & (ii) only (B) (ii) only (C) (iii) only (D) (ii) & (iv) only	2025 (Main)
2	A thread with triangular profile is found: (A) in external knuckle thread (B) in internal ACME thread (C) in external metric thread (D) in internal knuckle thread	2025 (Comp.)
3	The head of a square bolt is a square prism with a _____ chamfer. (A) Cylindrical (B) Cuboidal (C) Cubical (D) Conical	2025 (Comp.)
4	The length of the metal end of a plain stud of diameter 30 mm is (A) 10 mm (B) 30 mm (C) 24 mm (D) 68 mm	2025 (Main)
5	A thread with vertical and parallel flanks is called: (A) Square thread (B) Triangular thread (C) Knuckle thread (D) V-thread	2025 (Main)

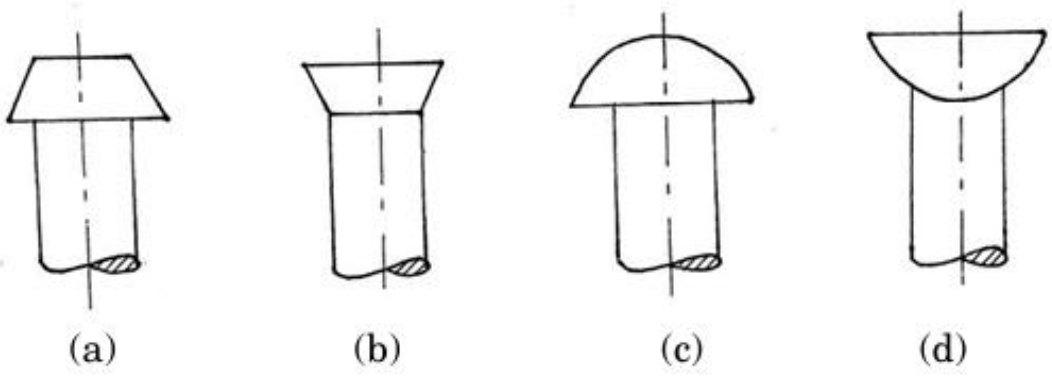
6	Lead is the distance moved by a nut or bolt in the axial direction in _____ complete rotation. (A) three (B) half (C) two (D) one	2024 (Main)
7	In a vertical hexagonal nut, the chamfering is seen as _____ in front view and _____ in top view. (A) quadrant, lines (B) arcs, circle (C) lines, quadrant (D) circle, arcs	2024 (Main)
8	Select the correct statements regarding Plain Washer. (i) Washer is a circular piece of plate having a strap at the ends. (ii) It resembles the gasket fitted in flange joint. (iii) For a bolt of nominal diameter 25 mm, thickness of the washer to be used is 3 mm. (iv) Usually plain washer is used in a nut and bolt assembly to reduce the machining area. **Options:** (A) (ii) and (iii) only (B) (ii) and (iv) only (C) (i) and (ii) only (D) (i) and (iv) only	2025 (Comp.)
	<1> MARK QUESTIONS – CASE STUDY BASED	
	(Q – 9 to Q – 12) Read the following paragraph and answer the questions given below: A book named ''Seven Small Inventions that Changed the World (In a Big Way)'' by the author Roma Agrawal was shortlisted for the 2023 Royal Society Science Book Prize. The author explores in this book how small machine parts like nuts, bolts, machine screws, etc. have together enabled once-impossible dreams such as space travel, etc. This book reveals the hidden building blocks of our modern world and shows how engineering has fundamentally changed the way we live. Machine screws come with a variety of head types. The choice of the head depends on the applications and the desired appearance.	2025 (Comp.)
9	If 'd' is diameter of a vertical round-headed screw, depth of slot in front view is: (A) d (B) 0.4 d (C) 0.25 d (D) 0.8 d	2025 (Comp.)
10	Machine screws are threaded fasteners like_____. (A) rivet (B) washer (C) cotter (D) bolt	2025 (Comp.)

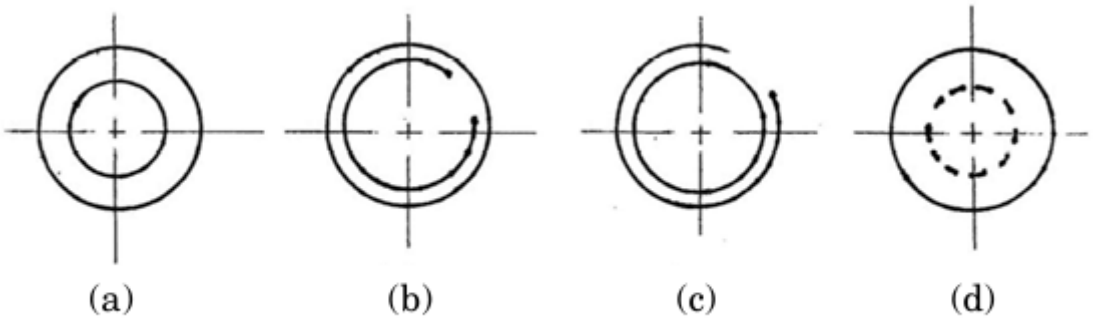
11	Identify the type of screw shown.  Front View (A) Hexagon socket head screw (B) Cheese head screw (C) Snap head screw (D) Square head screw	2025 (Comp.)
12	The type of machine screw which does not have a head is: (A) Pan screw (B) CSK screw (C) Flat screw (D) Grub screw	2025 (Comp.)
	Q. 13 to Q. 16: Read the following paragraph and answer the questions given below: Grub screw, also known as set screw, is a type of fixing screw that is most often used to join one component or part securely to another. Grub screws are used to hold parts like sleeve, collar, gear etc. on a shaft to prevent relative motion. It is represented by thread size such as M8, M10 etc. Where M stands for metric thread and the numeral represents the diameter of screw in millimetre.	2025 (Main)
13	Grub screws are also known as: (A) Counter sunk head screw (B) Pan head screw (C) Headless screw (D) Threadless screw	2025 (Main)
14	Why grub screws are used to hold sleeve on a shaft? (A) To reduce the misalignment of shaft (B) To prevent the relative motion (C) To reduce the production cost (D) To prevent the leakage of joint	2025 (Main)

15	The front view of vertical grub screw is represented by which of the following views? (i)  (ii)  (iii)  (iv)  (A) (i) (B) (ii) (C) (iii) (D) (iv)	2025 (Main)
16	The Complete circle of ϕd and the incomplete circle of ϕ0.8d in the top view of a vertical grub screw with diameter 'd' are drawn to _____. (A) represent conventionally the external V-thread. (B) attain the neatness of the figure. (C) Represent conventionally the internal V-thread. (D) attain the 3D effect of the circles.	2025 (Main)
	Q. 17 to Q. 21: Read the following paragraph and answer the questions given below: Akash joined as a helper in an automobile spare parts shop. On his first day of work, the supervisor told him to segregate the small machine parts to keep in a rack. Akash categorised each small part based on its common features. He made one group of machine parts having body of cylindrical cross-section without head. He also observed that all the machine parts in that group had different types of central portion with threads on both ends. These machine parts are known as studs.	2024 (Main)
17	The thickness of collar in a collar stud of 30 mm diameter is (A) 12 mm (B) 30 mm (C) 45 mm (D) 66 mm	2024 (Main)

18	In top view external thread of a vertical stud is represented by (A) both major and minor two circles as incomplete circles. (B) both major and minor circles as complete circles. (C) major diameter circles as a complete circle and minor diameter circle as an incomplete circle. (D) major diameter circle as an incomplete circle and minor diameter circles as a complete circle.	2024 (Main)
19	_____ is used where sufficient space for bolt head is not available. (A) Collar rod (B) CSK rivet (C) Stud (D) CSK screw	2024 (Main)
20	Apart from stud with square neck and collar stud, _____ is the third type of stud. (A) pipe stud (B) rim stud (C) socket stud (D) plain stud	2024 (Main)
21	If 20 mm is the diameter of a stud with square neck, then the value of 'y' in the figure is:  (A) 16 mm (B) 20 mm (C) 43 mm (D) 46 mm	2024 (Main)

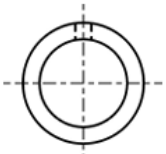
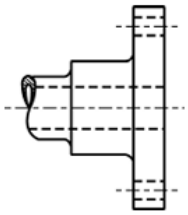
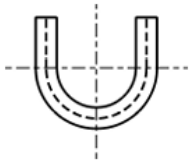
	Q. 22 to Q. 26: Read the following paragraph and answer the questions given below: A group of class XIIth students having an optional subject Engineering Graphics visited a Thermal Power Plant along with their subject teacher on Industrial Tour. The subject teacher showed them a Boiler and asked a few questions about the applications of Permanent fastener.	2023 (Main)
22	Generally, rivets are used as fasteners (a) in Rubber industry (b) in Concrete structures (c) in Steel structures (d) in Plastic structures	2023 (Main)
23	A rivet is a _____. (a) threaded fastener (b) non-threaded fastener (c) support for vertical shafts (d) support for horizontal shafts	2023 (Main)
24	Select the standard dimension of outer diameter of a flat head rivet of diameter 'd'. (a) d (b) 1.5d (c) 2d (d) 2.5d	2023 (Main)
25	Select the top view of a vertical snap head rivet.  	2023 (Main)
26	Select the front view of a pan head rivet.  	2023 (Main)

	Q. 27 to Q. 31 Read the paragraph given below and answer the following questions. A school dropout boy joined as a helper in an auto spare parts shop. On his first day of work, the owner told him to segregate the small machine parts kept in a sack. The boy categorised each small part based on its common feature. He made one group of machine parts having body of cylindrical cross-section, head and tail. Later he found that all the parts in that group had different types of heads. These parts are known as rivets.	2023 (Comp.)
27	Select the most commonly used rivet head: (a) Octagonal head (b) Hexagonal head (c) Snap head (d) Square head	2023 (Comp.)
28	Select the standard thickness of head in a flat head rivet of diameter 'd'. (a) d (b) 0·25 d (c) 0·5 d (d) 0·8 d	2023 (Comp.)
29	Name one of the practical applications of rivets: (a) pressure cooker handle attached to its body (b) trolley attached to a tractor (c) matting of jewellery pieces (d) hub attached to shafts	2023 (Comp.)
30	Select the front view of a flat CSK head rivet:  (a) (b) (c) (d)	2023 (Comp.)

31	Select the top view of vertical pan head rivet:  	2023 (Comp.)
	< 8 > MARK QUESTIONS	
32	Draw to scale 1 : 1, the standard profile of **BSW THREAD** taking enlarged pitch as 50 mm. Give standard dimensions.	2025 (Comp.)
33	Draw to scale 1 : 1, the standard profile of **EXTERNAL METRIC THREAD** taking enlarged pitch as 50 mm. Give standard dimensions.	2025 (Main)
34	Draw to scale 1 : 1, the standard profile of **METRIC THREAD EXTERNAL** with enlarged pitch 40 mm. Give standard dimensions.	2023 (Main)
35	Draw to scale 1 : 1, the standard profile of **KNUCKLE THREAD** taking enlarged pitch 60 mm. Give standard dimensions.	2024 (Main) 2023 (Comp.)
36	Draw to scale 1 : 1, the front view and top view of a **SQUARE NUT** for a nominal diameter (d) as 25 mm. Keep its axis perpendicular to H.P. and two sides of the square equally inclined to V.P. Give standard dimensions.	2025 (Comp.)
37	Draw to scale 1 : 1, the front view of a vertical **HEXAGONAL BOLT** of diameter 25 mm. The bolt is resting on H.P. with its hexagonal head on it. Give standard dimensions.	2025 (Main)
38	Draw to scale 1 : 1, the front view and left side view of a **SQUARE HEADED BOLT**. Keep the axis parallel to both V.P. and H.P., take the nominal diameter of bolt as 20 mm and length of bolt as 80 mm. Give standard dimensions.	2024 (Main) 2023 (Comp.)
39	Draw to scale 1 : 1, the front view and top view of a vertical **HEXAGONAL NUT** of diameter 25 mm. Give standard dimensions.	2023 (Main)

UNIT – 2 (MACHINE DRAWING (B – ASSEMBLY DRAWINGS AND DIS-ASSEMBLY DRAWINGS))

	< 1 > MARK QUESTIONS	MAIN/ COMP.
1	Open bearing is an example of _____. (A) Journal bearing (B) Rolling bearing (C) Pivot bearing (D) Thrust bearing	2025 (Comp.)
2	In a tie rod joint, the LH threaded rod is fitted from _____ side of the body. (A) top (B) left (C) right (D) bottom	2025 (Comp.)
3	In a BUSH BEARING assembly, the inside of the bush is bored as a fit for_____. (A) Foundation bolt (B) Sole (C) Shaft (D) Recess	2025 (Main)
4	Due to which of the following reason, usually pipes are made of standard length, not of desired length? (A) Constraints of manufacturing (B) Policy of government (C) Existence of friction (D) Leakage possibilities	2025 (Main)
5	In a gib and cotter joint, if the thickness of cotter is 8 mm, then the thickness of gib will be (A) 8 mm (B) 6 mm (C) 4 mm (D) 2 mm	2024 (Main)
6	The rods in a tie rod joint are externally threaded and the holes in the cylindrical body are _____ threaded. (A) internally (B) externally (C) tangentially (D) concurrently	2024 (Main)

7	The rods in a tie rod joint are externally threaded and the holes in the cylindrical body are _____ threaded. (a) internally (b) externally (c) tangentially (d) concurrently	2023 (Comp)
8	Generally, the clearance provided in cotter hole is: (a) 5 to 10 mm (b) 10 to 20 mm (c) 4 to 8 mm (d) 2 to 3 mm	2023 (Comp)
9	Match List-I with List-II: **List-I** **Front view of component of assembly** (1)  (2)  (3)  (4)  **List-II** **Name of the component** (i) Flange (ii) Bush of BUSH BEARING (iii) Gasket (iv) Bush of OPEN BEARING **Options:** (A) (1)-(iv), (2)-(ii), (3)-(iii), (4)-(i) (B) (1)-(ii), (2)-(iii), (3)-(i), (4)-(iv) (C) (1)-(ii), (2)-(i), (3)-(iv), (4)-(iii) (D) (1)-(i), (2)-(iv), (3)-(iii), (4)-(ii)	2025 (Main)

<table>
<tr><td>10</td><td>Select the Journal Bearing among the following:

(a) Linear Bearing

(b) Bush Bearing

(c) Pivot Bearing

(d) Spherical Bearing</td><td>2023
(Main)</td></tr>
<tr><td>11</td><td>The purpose of Gib in Gib and Cotter Joint is _____.

(a) to join the cotters together

(b) to arrest the opening of the jaws of the strap

(c) to join the shafts together

(d) to arrest the motion of the shafts</td><td>2023
(Comp)</td></tr>
<tr><td>12</td><td>Match List-I with List-II related to Flange Pipe Joint:

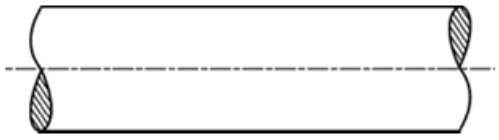
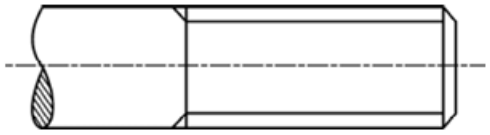
<table><tr><th colspan="2">List – I</th><th colspan="2">List – II</th></tr><tr><td>a</td><td>Flange</td><td>i</td><td>The diameter of a circle on which the holes are placed equally apart.</td></tr><tr><td>b</td><td>Gasket</td><td>ii</td><td>Nuts and bolts are used for joining flanged pipes</td></tr><tr><td>c</td><td>P.C.D.</td><td>iii</td><td>Circular packing ring of soft material</td></tr><tr><td>d</td><td>Screw Pair</td><td>iv</td><td>Projected circular ring on the ends of pipes</td></tr></table>
Options:

(A) a-iv, b-iii, c-i, d-ii

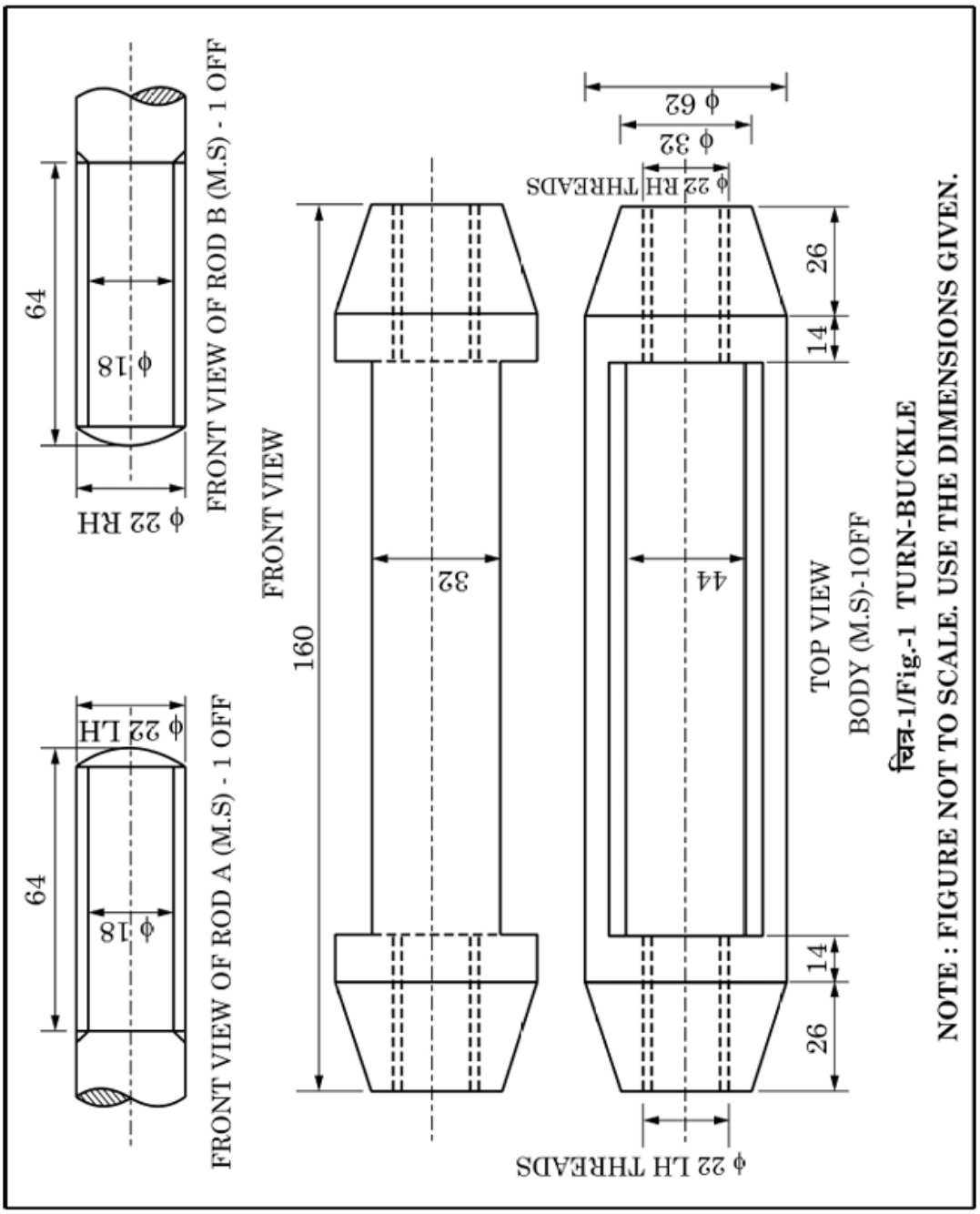
(B) a-i, b-ii, c-iv, d-iii

(C) a-iv, b-i, c-ii, d-iii

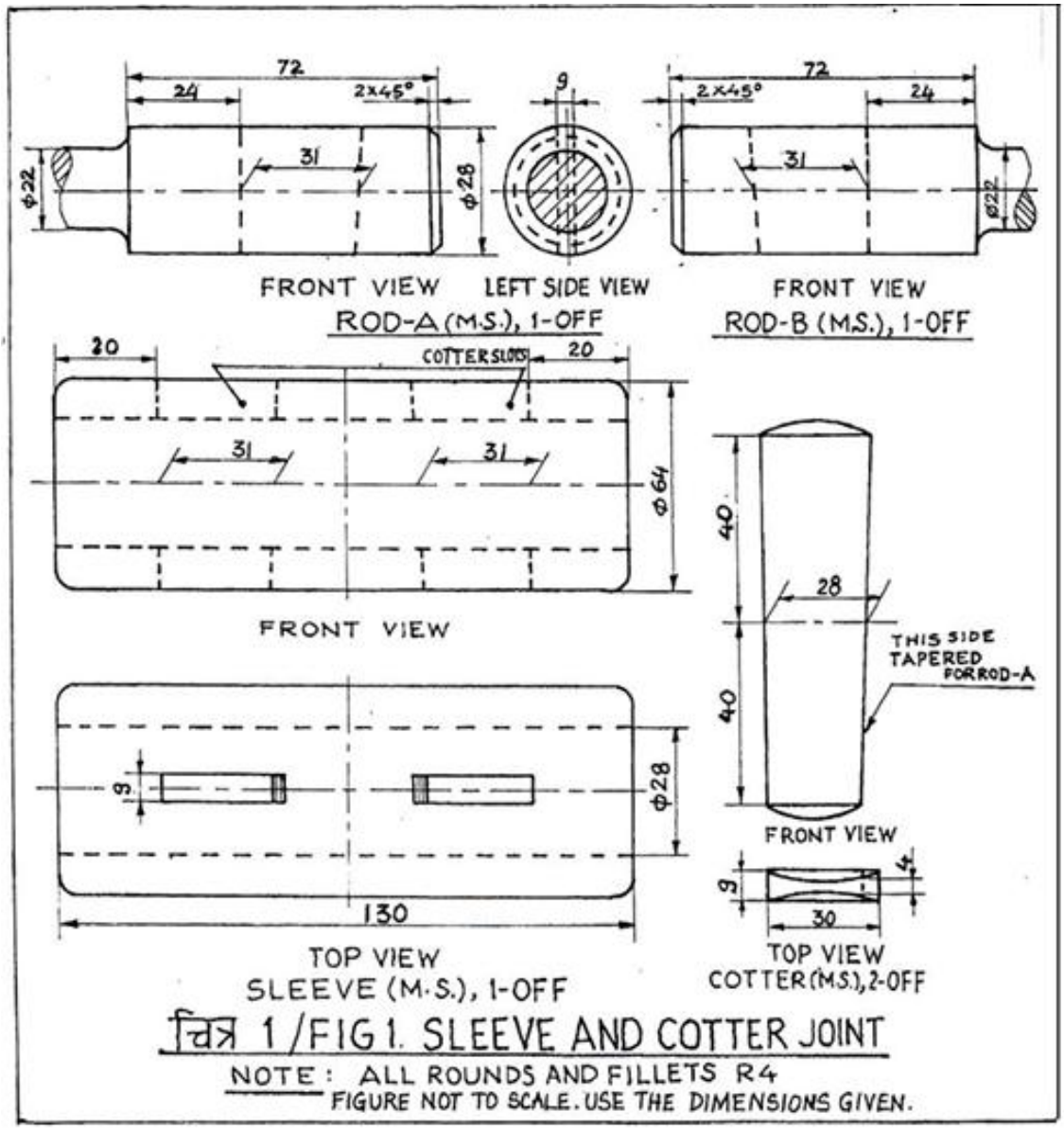
(D) a-iii, b-iv, c-ii, d-i</td><td>2025
(Comp.)</td></tr>
</table>

13	The body of a turnbuckle has a slot at the central portion _____. (a) to reduce the friction (b) to increase the friction (c) to aid removing the defect in manufacturing (d) for tightening and loosening of rods by tommy bar	2023 (Main)
14	In Bush bearing the base plate or sole is recessed up to _____. (a) 5 mm (b) 4 mm (c) 3 mm (d) 2 mm	2023 (Main)
15	Match List-I with List-II: **List – I** **Conventional representation** 1.  2.  3.  4.  **List – II** **Components** (i) rods of square cross-section (ii) pipes (iii) round rod with external threads (iv) round rod without thread 1 2 3 4 (A) (i) (iv) (iii) (ii) (B) (ii) (iii) (iv) (i) (C) (iv) (i) (ii) (iii) (D) (ii) (i) (iv) (iii)	2024 (Main)

	< 27 > MARK QUESTIONS – BASED ON ASSEMBLY OF MACHINE PARTS	
16	Fig. 1 shows the details of the parts of a TURN-BUCKLE. Assemble all these parts correctly and then draw to scale 1 : 1 its following views. Keep 54 mm threaded portion of each rod inside the body of turn-buckle. (i) Front view upper half in section (ii) Right side view Print the title and scale used. Draw the projection symbol. Give six important dimensions.	2025 (Main)



17	Fig.1 shows the details of the parts of a Sleeve and Cotter Joint. Assemble all these parts correctly, and then draw its following views using scale 1 : 1. (i) Front view lower half in section (ii) Right side view Print the title and scale used. Draw the projection symbol. Give 6 important dimensions.	2025 (Comp.)



चित्र 1 / FIG 1. SLEEVE AND COTTER JOINT

NOTE : ALL ROUNDS AND FILLETS R4
FIGURE NOT TO SCALE. USE THE DIMENSIONS GIVEN.

18	Fig.-1 shows the details of the parts of an OPEN BEARING. Assemble all these parts correctly and then draw to scale 1 : 1 its following views: (i) Front view, right half in section (ii) Left side view Print the title and scale used. Draw the projection symbol. Give six important dimensions.	2024 (Main)

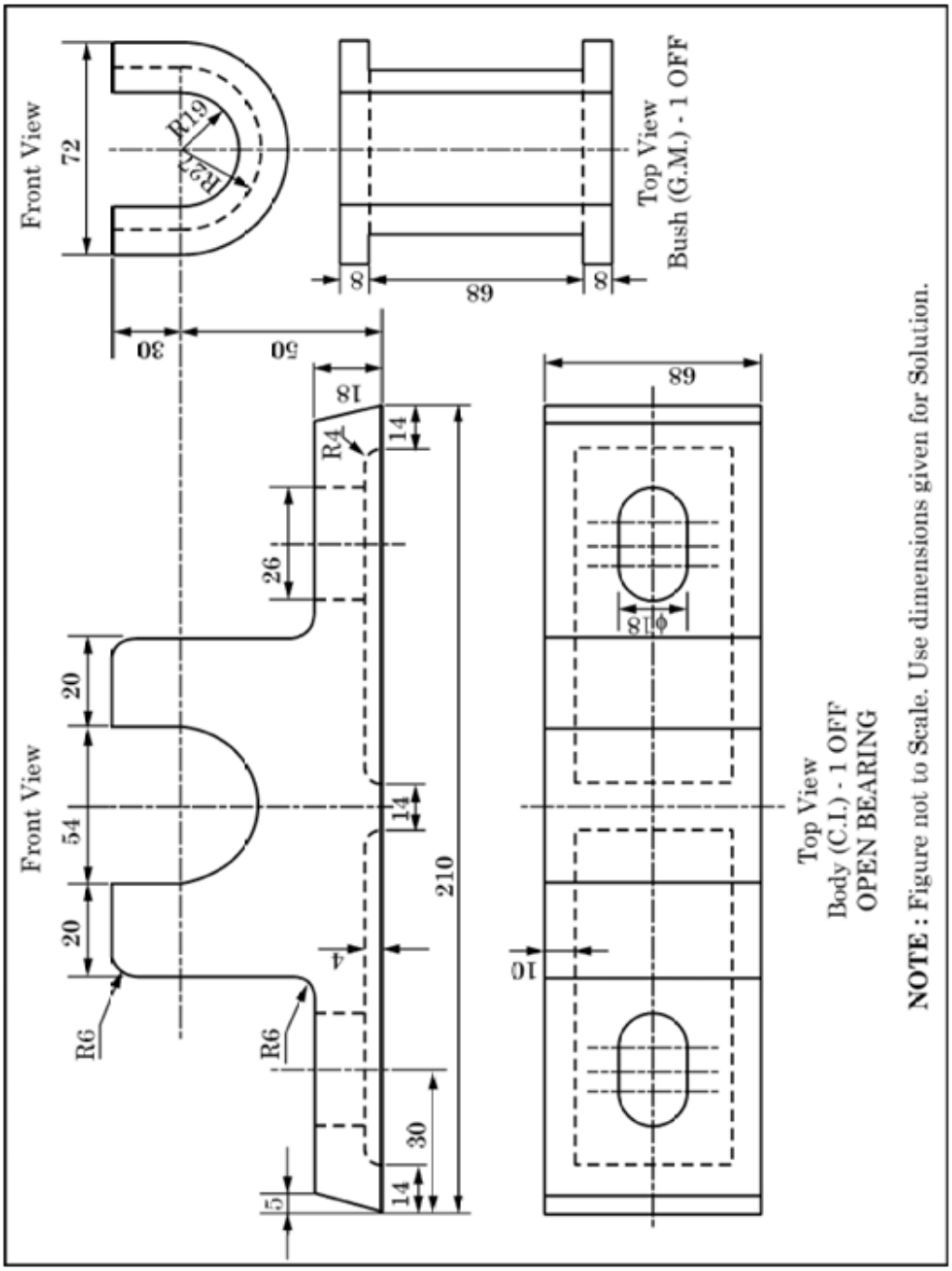


Fig. 1

19	Fig. 1 shows the details of the parts of a FLANGE PIPE JOINT. Assemble all these parts correctly and then draw to scale 1 : 1 its following views : (i) Front view lower half in section (ii) Right side view Print the title and scale used. Draw the projection symbol. Give six important dimensions.	2023 (Main)

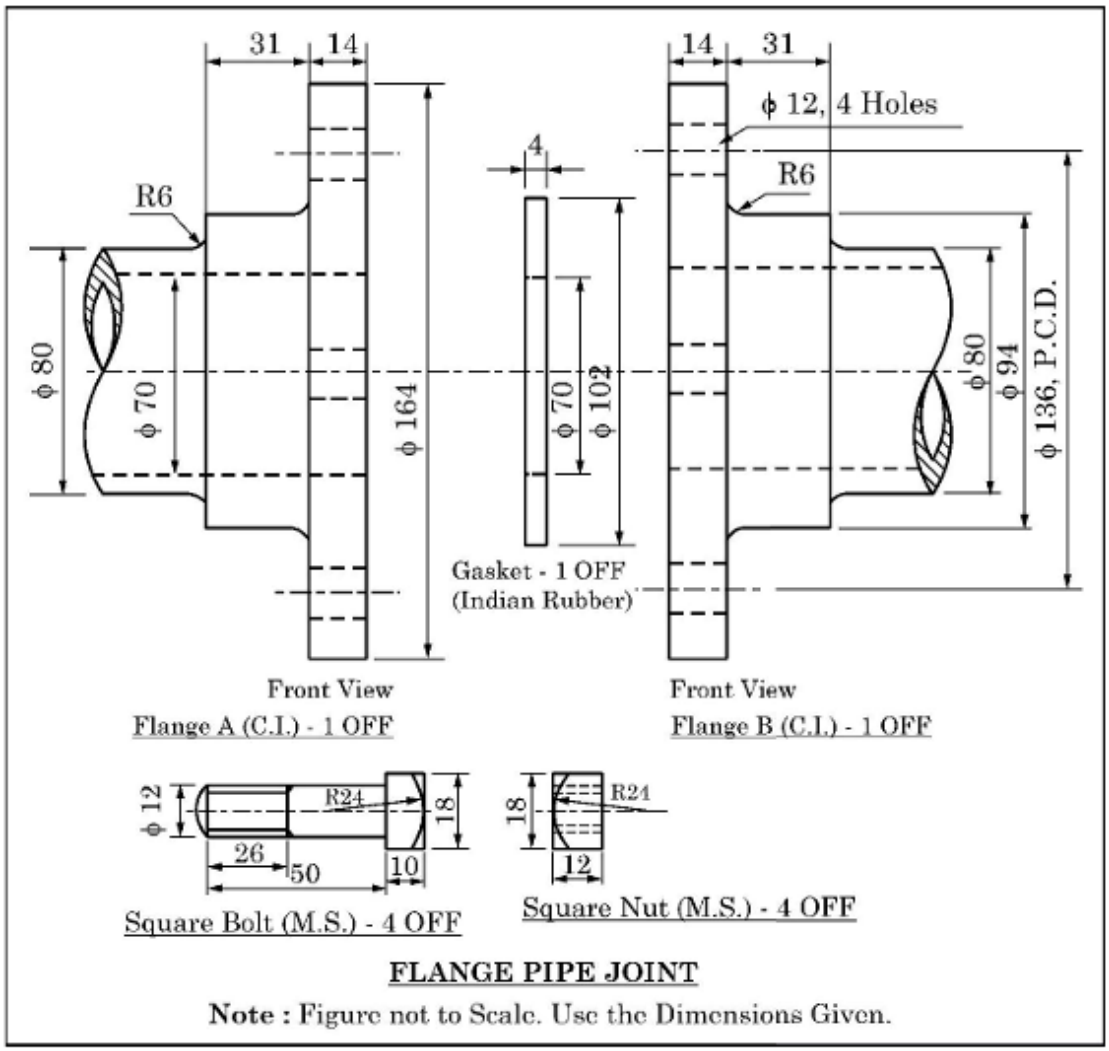
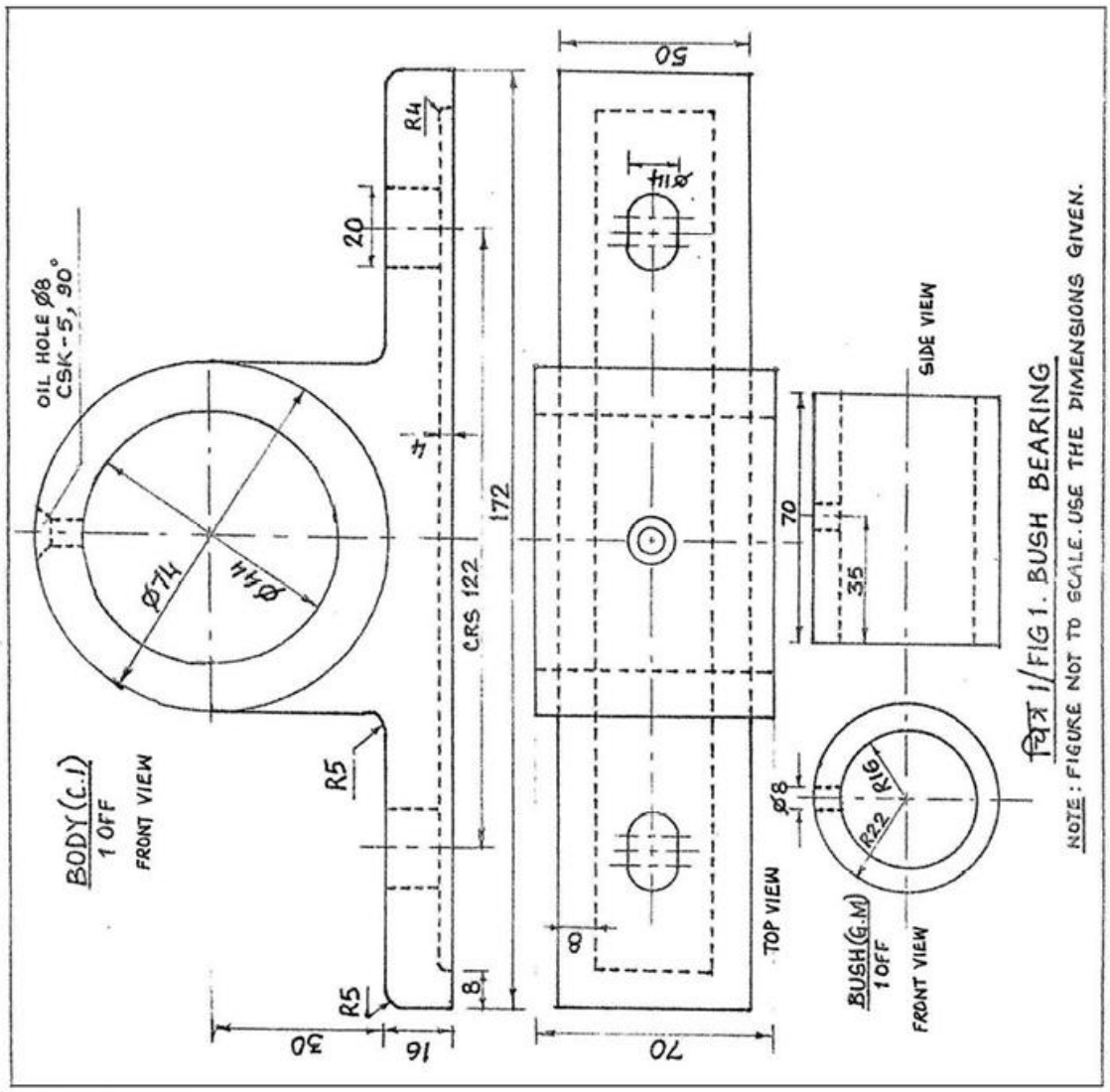


Fig. 1

20	Figure 1 shows the details of the parts of a Bush Bearing. Assemble all these parts correctly and then draw to scale 1 : 1 its following views: (a) Front view, left half in section (b) Right side view Print the title and scale used. Draw the projection symbol. Give six important dimensions.  	2023 (Comp.)

21	FIG. 1 shows the details of the parts of a TURN BUCKLE. Assemble all these parts correctly and then draw to scale 1 : 1 its following views. Keep 60 mm threaded portions of each rod inside the body of Turn Buckle. (i) Front view lower half in section (ii) Top view Print title and scale used. Draw the projection symbol. Give six important dimensions.	2022 (TERM-2)

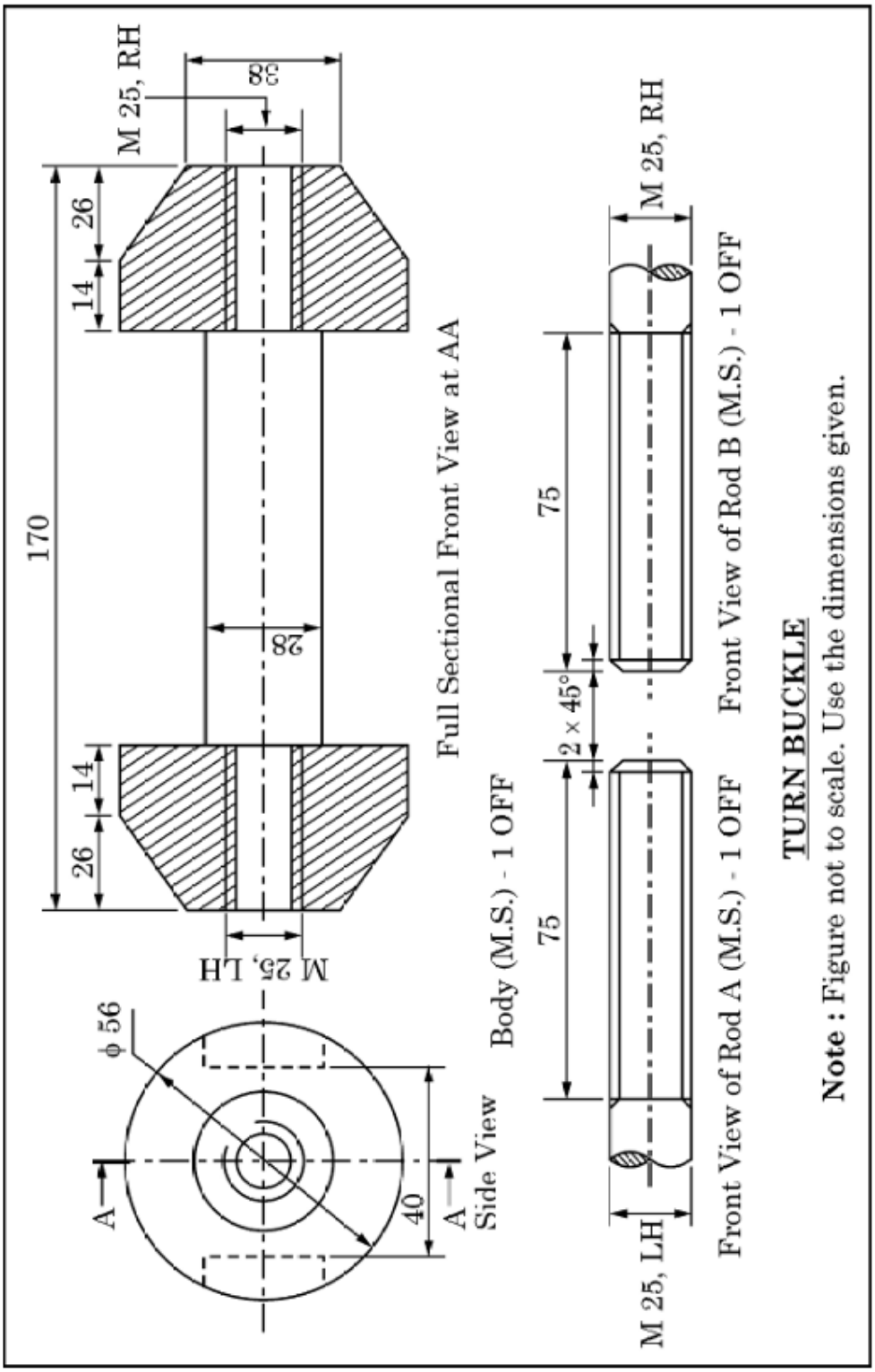
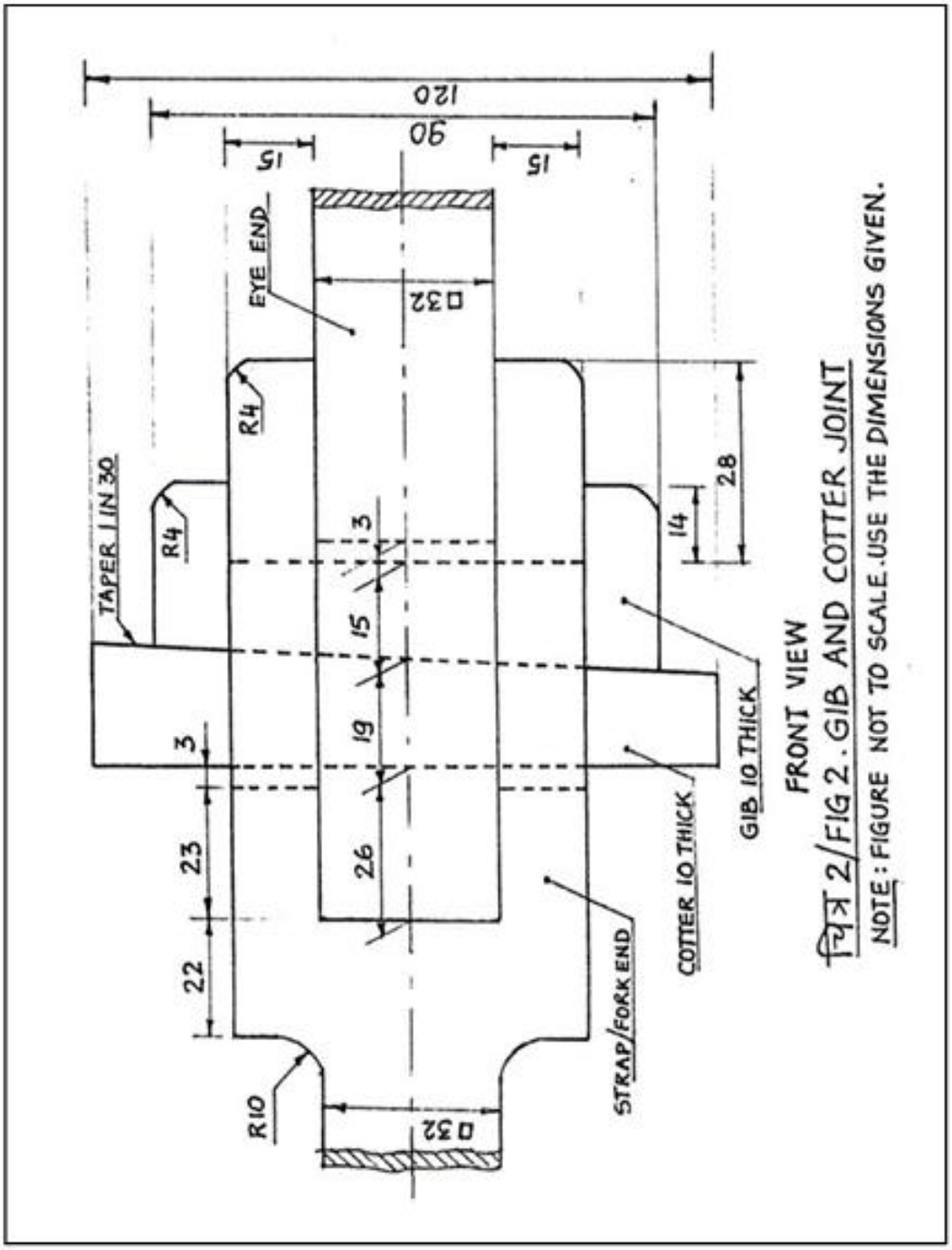


FIG. 1

	< 27 > MARK QUESTIONS – BASED ON DIS-ASSEMBLY OF MACHINE PARTS	
22	Fig. 2 shows the front view of the assembly of a Gib and Cotter Joint. Disassemble the parts and then draw the following views of the following parts to scale 1 : 1. Keep the parts in the same position, with respect to H.P. and V. P. **(i) STRAP** (I) Front view upper half in section (II) Left side view **(ii) GIB** (I) Front view (II) Right side view Print the titles of both and scale used. Draw the projection symbol. Give 6 important dimensions.	2025 (Comp.)



23	Fig. 2 shows the assembly of a Bush Bearing. Disassemble the parts correctly and then draw to scale 1 : 1 its following views of the following components. Keep the same position of both body and bush with respect to H.P. and V.P. (i) Body (a) Full sectional front view (b) Left side view (ii) Bush (a) Front view (b) Full sectional right-side view Print the tittles of both and scale used. Draw the projection symbol. Give six important dimensions.	2024 (Main)

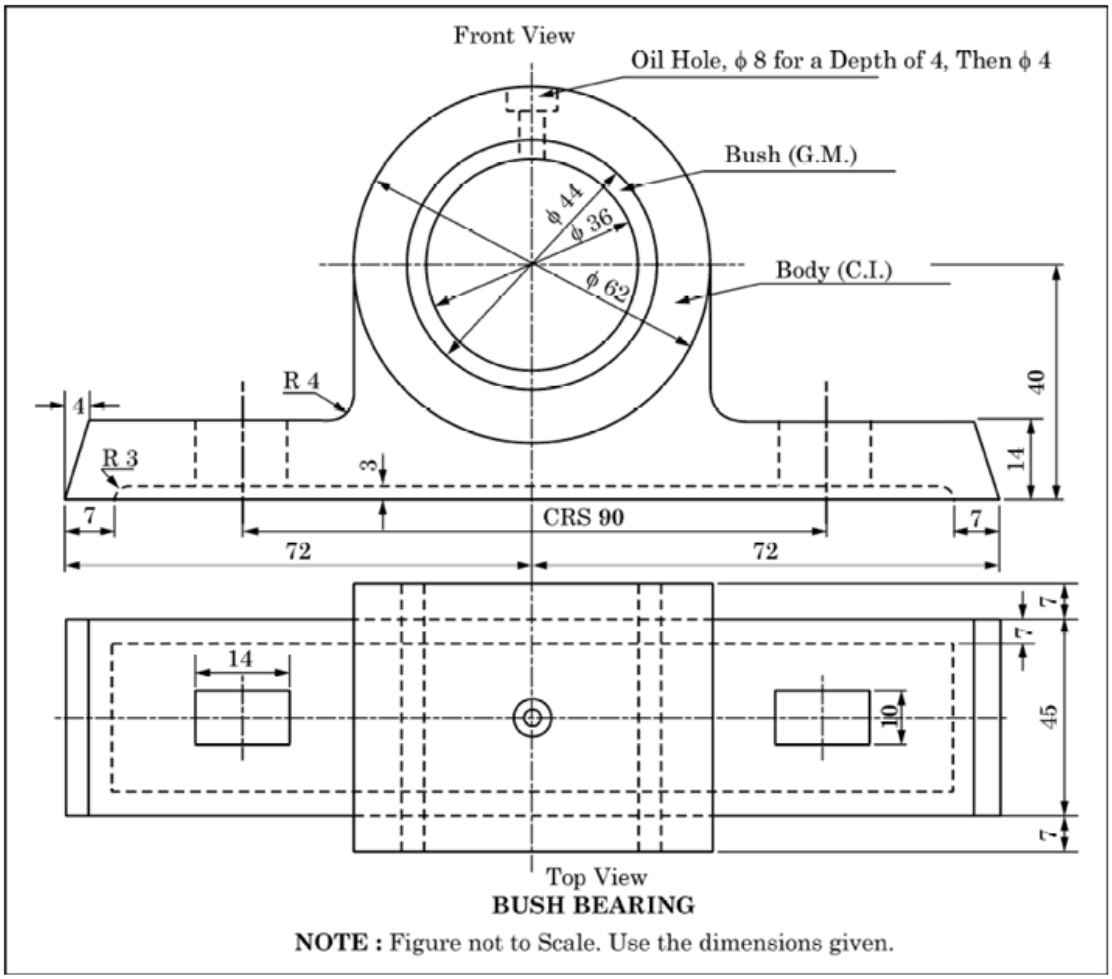


Fig. 2

24	Fig. 2 shows the assembly of a SLEEVE AND COTTER JOINT. Disassemble the parts correctly and then draw to scale 1 : 1 its following views of the following components. Keep the same position of both sleeve and rod with respect to H.P and V.P. (a) SLEEVE (i) Full sectional front view (ii) Top view (b) ROD A (i) Front view upper half in section (ii) Left side view Print the titles of both and scale used. Draw the projection symbol. Give six important dimensions.	2023 (Main)

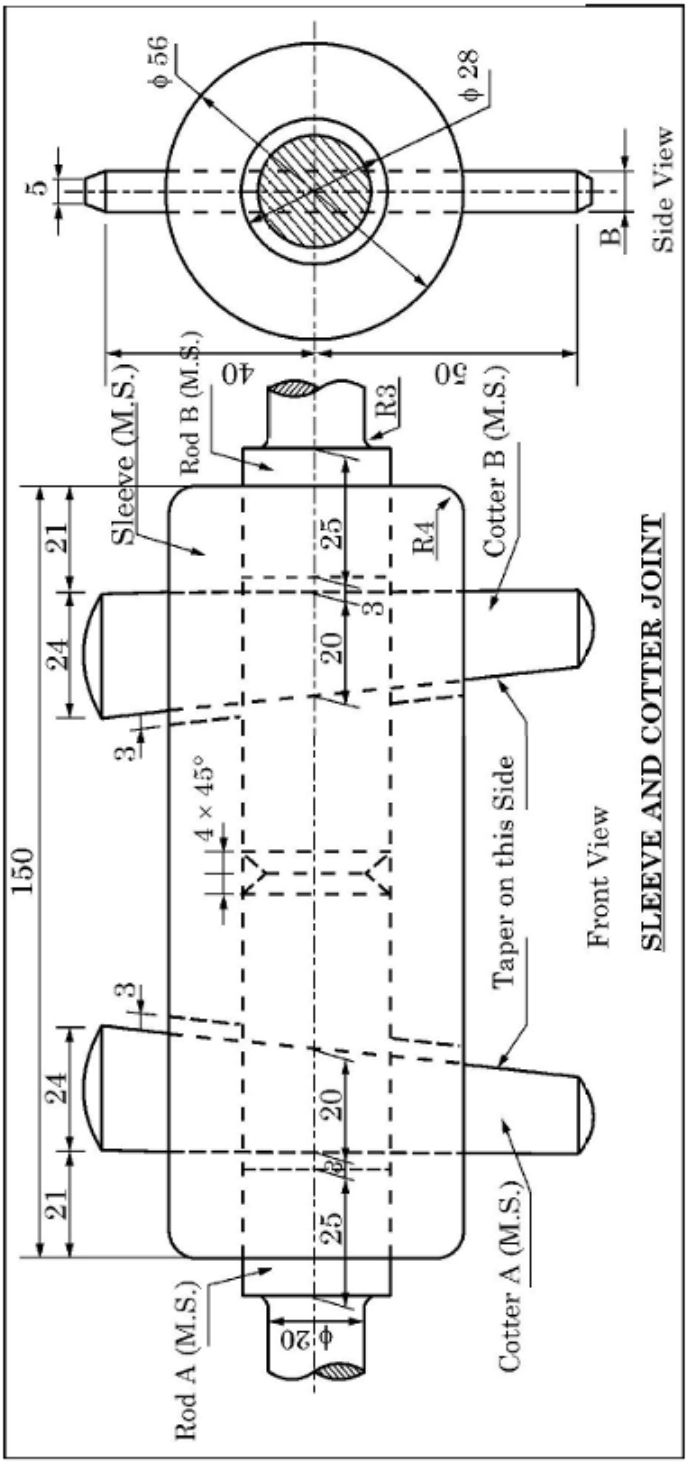
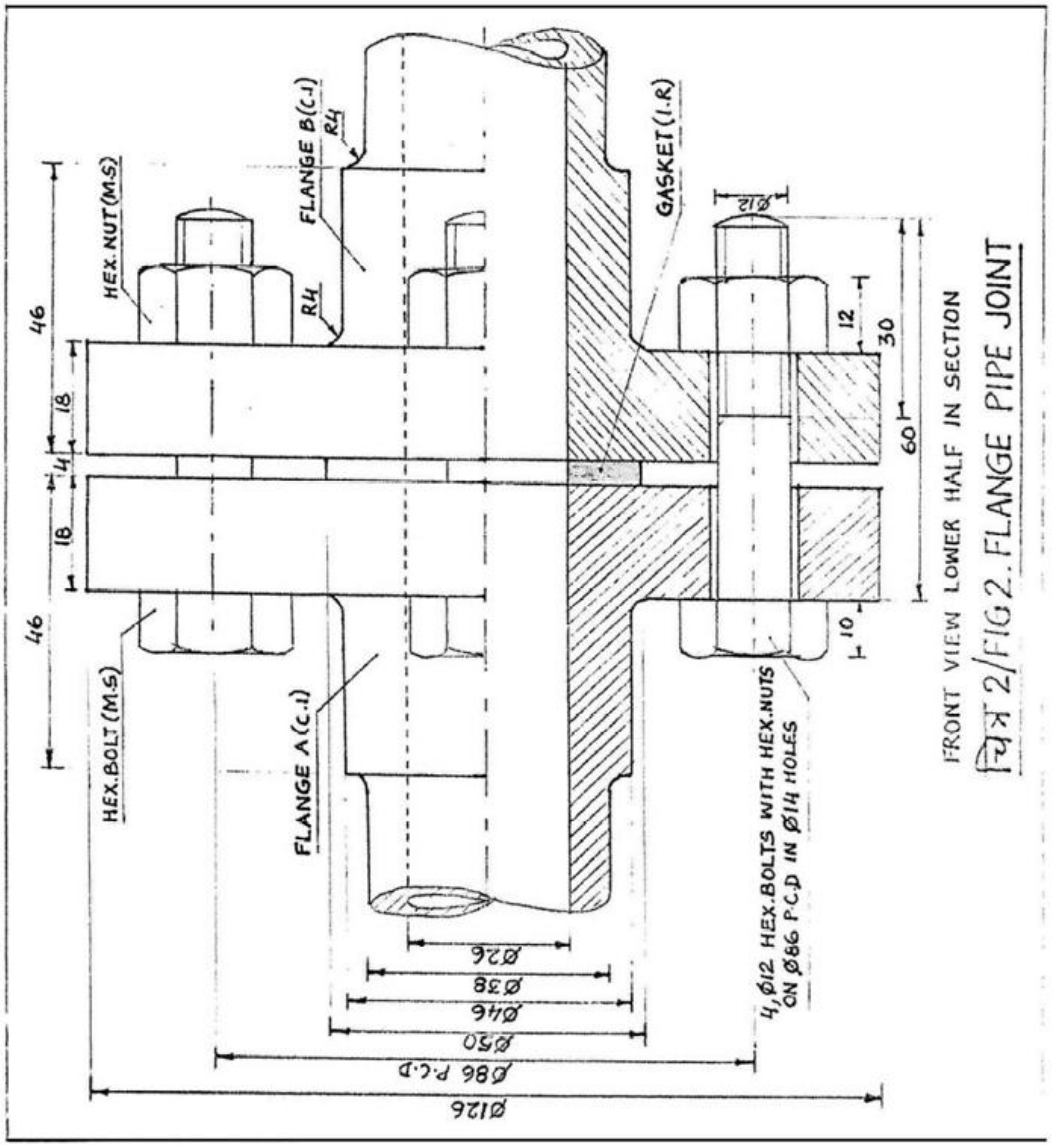


Fig. 2

25	Figure 2 shows the assembly of Flange Pipe Joint. Dis-assemble the parts correctly and then draw to scale 1 : 1 its following views of the following components. Keep the same position of both flange and nut with respect to H.P. and V.P. (a) FLANGE B (i) Front view upper half in section (ii) Right side view (b) HEXAGONAL NUT (i) Front view (ii) Right side view Print the titles of both and scale used. Draw the projection symbol. Give six important dimensions.	2024 (Comp.)



26	FIG. 2 shows the assembly of OPEN BEARING. Disassemble the parts correctly and then draw to scale 1 : 1 its following views of the following components. Keep the same position of both body and bush with respect to H.P and V.P. (i) BODY (a) Full sectional front view (b) Top view (ii) BUSH (a) Front view left half in section (b) Top view Print the titles of both and scale used. Draw the projection symbol. Give six important dimensions.	2022 (TERM-2)

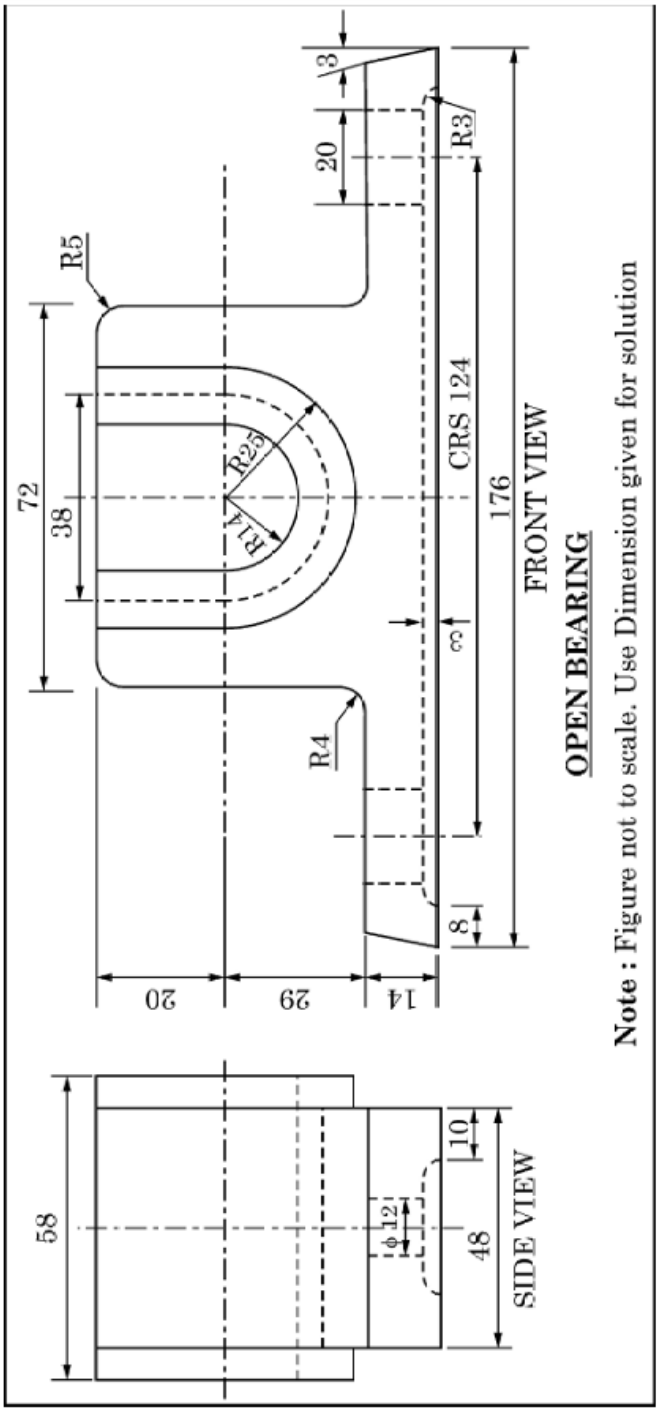


FIG. 2