

2022

## ENGINEERING DRAWING

(Theory)

Full Marks : 70

Pass Marks : 21

**Instructions :**

**Time : Three hours**

- (i) Attempt all the questions.
- (ii) All dimensions are in millimetres.
- (iii) Missing and mismatching dimensions, if any may be suitably assumed.
- (iv) Use both sides of the drawing sheet if necessary.
- (v) Follow the SP : 46 – 2003 revised codes, (With first angle method of projection) if not mentioned.
- (vi) In question 4, hidden edges or lines are to be shown in views without section.

1. Answer the following Multiple Choice Questions. Rewrite the correct answer on your drawing sheet.

1 × 5 = 5

- i. The isometric plane is bounded by how many axes ?
  - (A) Two
  - (B) Three
  - (C) four
  - (D) One
- ii. A solid without any edge or vertex, when visualized from any direction appears as a circle is :
  - (A) Sphere
  - (B) Cone
  - (C) Cylinder
  - (D) Prism

P.T.O.



- iii. Riveting is done for joining :
- (A) Shafts together                      (B) Plates together  
 (C) Pipes together                      (D) pulleys together
- iv. Two principal requirement for a technical drawing are shape and :
- (A) Location                      (B) view  
 (C) size                      (D) section
- v. Which of the following is not a reduced scale ?
- (A) 1 : 20                      (B) 1 : 1  
 (C) 1 : 5                      (D) none of these
2. (a) Construct an Isometric scale. 3
- (b) A regular pentagonal prism, base side 40 mm and length 70 mm is resting on one of its rectangular faces on the H.P. and its axis is parallel H.P. and V.P. Draw its isometric projection. Draw the axis and indicate the direction of viewing. Give all dimensions. 7
- (c) A regular hexagonal prism of base sides 25 mm and length 80 mm is lying on H.P. on one of its rectangular faces, with its hexagonal ends parallel to V.P. A cone of base diameter 40 mm and height 50 mm, with its axis vertical, rests centrally on the top rectangular face of the prism. Draw the isometric projection of the solid, placed together. Give all dimensions. 13
3. (a) Draw to scale 1 : 1, the front view and top view of a T-head bolt of size M 20, Keeping its axis perpendicular to H.P. Give standard dimensions. 8

**OR**

Draw to scale 1 : 1, the standard profile of a Metric Thread(internal), taking pitch as 50 mm. Give all standard dimensions. 8



- (b) Sketch freehand, the front view and left-hand side view of a hexagonal socket head machine screw of size M 20, keeping its axis parallel to H.P. and V.P. Give all standard dimensions. 6

OR

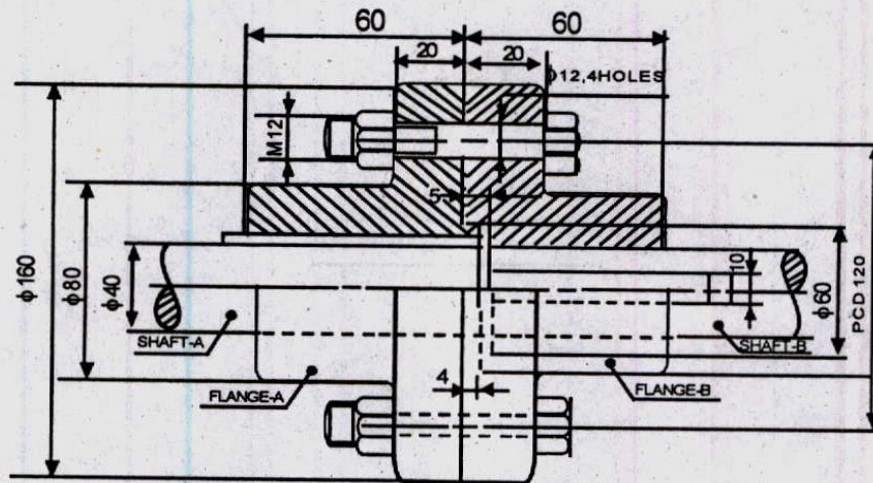
Sketch a freehand, the front view and top view of Pan head without tapered neck, keeping the axis vertical. Take diameter of rivet as 20 mm. 6

4. Figure 1. shows the assembly of an Unprotected Flange Coupling. Disassemble the parts correctly and then draw to scale 1:1 the following, without changing their position with respect to H.P. and V.P.

- i. Flange A : Front view upper- half in section and its right – hand side view.
- ii. Flange B : Front view upper- half in section and its left – hand side view.
- iii. Shaft A : Front view and right – hand side view.
- iv. Shaft B : Front view and left – hand side view.

28

Give all important dimensions.



TOP HALF SECTIONAL FRONT VIEW  
FOLLOW THE GIVEN DIMENSIONS ONLY  
UNPROTECTED FLANGE COUPLING

Fig. 1



OR

Figure 2. shows the assembly of a Turnbuckle. Disassemble its parts correctly and then draw the following to scale 1:1, keeping its parts in the same position with respect to H.P. and V.P.

- Turnbuckle : Front view full in section, top view and side view as seen from left.
- Rod - B : Front view and left - hand side view.

Draw the projection symbol. Give all main dimensions.

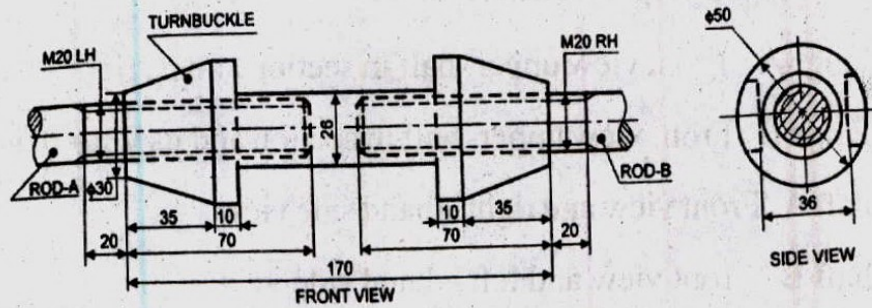


Fig. 2