CBSE Class 12 Engineering Graphics 2011 - Set 68

Question Paper

Conducted by the Central Board of Secondary Education (CBSE)

Time Allowed: 3 Hours **Maximum Marks: 70**

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 or mismatching dimensions, if any, may be suitably assumed.
(v) Follow the SP 46:1988 codes, with first-angle method of projection.
(vi) No hidden edges or lines are required in Question 1 or in sectional views of Question 3.

Questions

1(a). Construct an isometric scale, 100 mm long.

1(b). Construct the isometric projection, to isometric scale, of a hemisphere (diameter = 80 mm), resting on H.P. with its curved surface on it and top circular face, parallel to H.P. The axis is perpendicular to H.P. Draw the axis, marking the center of its circular face and its height from H.P. Give dimensions.

1(c). A square prism (base edge 80 mm and height 30 mm) is resting on H.P., with its square base on it. One of the base edges of the prism, is parallel to V.P.

A hexagonal pyramid (base edge = 30 mm and height = 70 mm) is placed, centrally, on its top square face, with its hexagonal base on it.

One of the base edges of the pyramid, is parallel to V.P.

Draw the isometric projection of the solids, placed together, to isometric scale. Draw the common axis and show the direction of viewing. Give all dimensions.

2(a). Draw to scale 1 : 1, the full sectional front view of a single riveted lap joint. Take thickness of the plates as 16 mm. Give standard dimensions.

OR

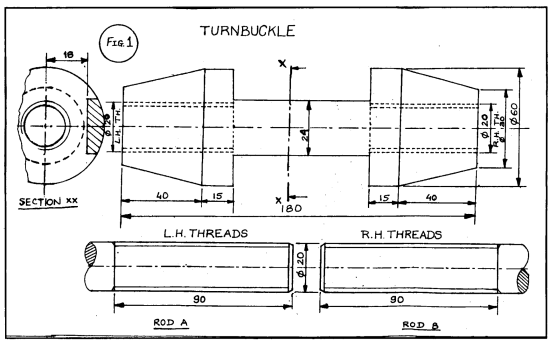
2(a). Draw to scale 1 : 1, the front view of a hexagonal headed bolt of size, M26 × 4 × 120 mm long, fitted with a washer of 55 mm diameter and thickness 4 mm and a square nut. Keep the common axis parallel to H.P. and V.P. Give standard dimensions.

2(b). Sketch free-hand the front view and top view of a 90° flat countersunk-head screw of size, M20. Keep the axis vertical. Give standard dimensions.

OR

2(b). Keeping its axis vertical, sketch free-hand the front view and the top view of a flat head rivet of diameter 25 mm. Give standard dimensions.

3. Figure 1 shows the details of the parts of a **Turnbuckle**. Inserting 50 mm length of each one of the threaded ends of the rods A and B, assemble these parts, correctly, and draw the following views, to a scale full size :



An enlarged drawing is provided in the drawing references at the end of this paper.

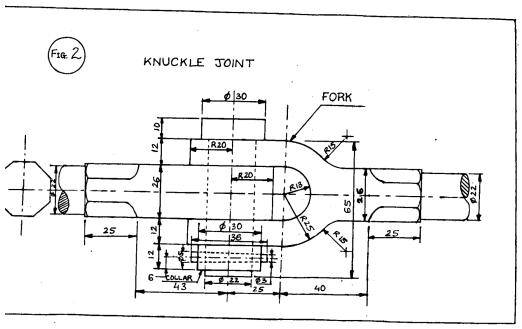
3(a). Sectional front view, bottom half in section.

3(b). Side view, as viewed from the right.

3(details). Print title and scale used. Draw the projection symbol. Give 6 important dimensions.

OR

3. Figure 2 shows the front view of the assembly of the **Knuckle Joint**. Disassemble the parts and draw the following views to scale 1 : 1. Keep the same position of the parts with respect to H.P. and V.P. :



An enlarged drawing is provided in the drawing references at the end of this paper.

3(a). Front view of the Fork, full in section.

3(b). Front view of the Collar, full in section.

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

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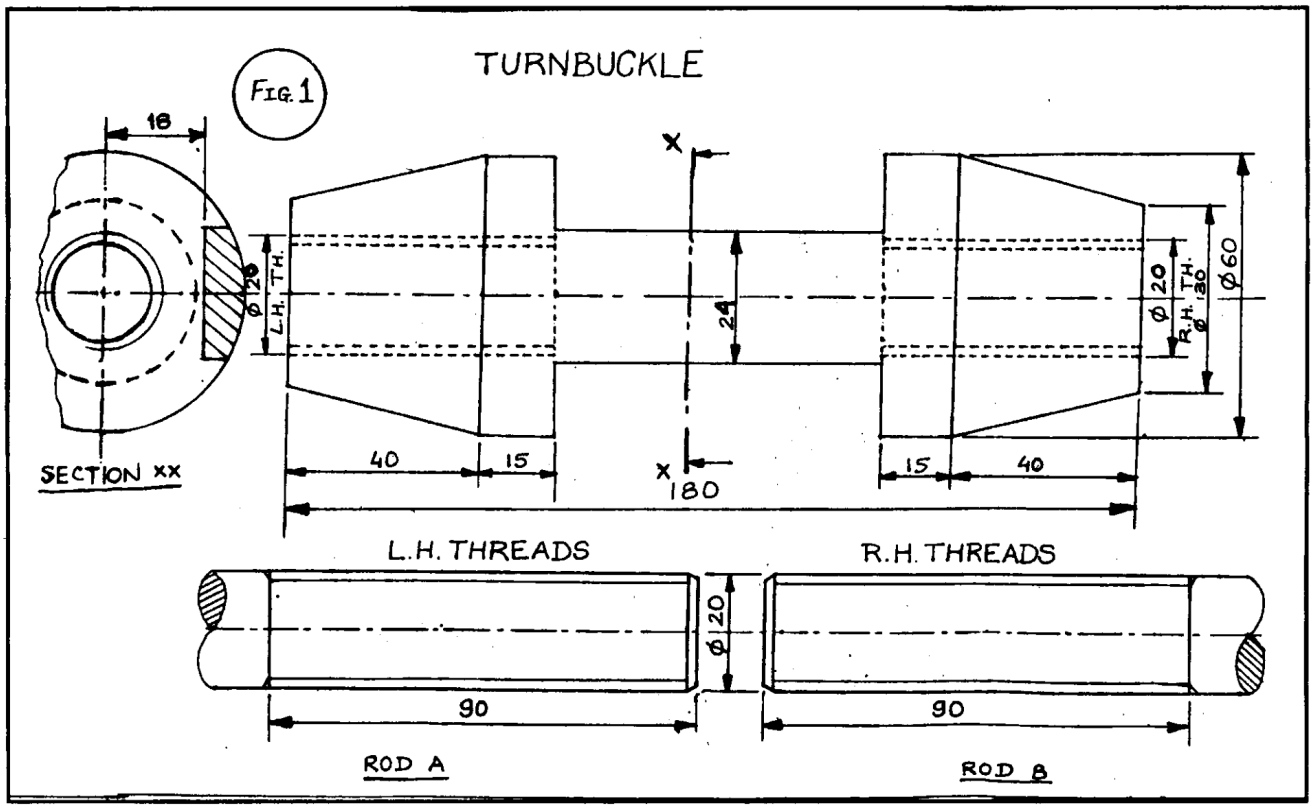
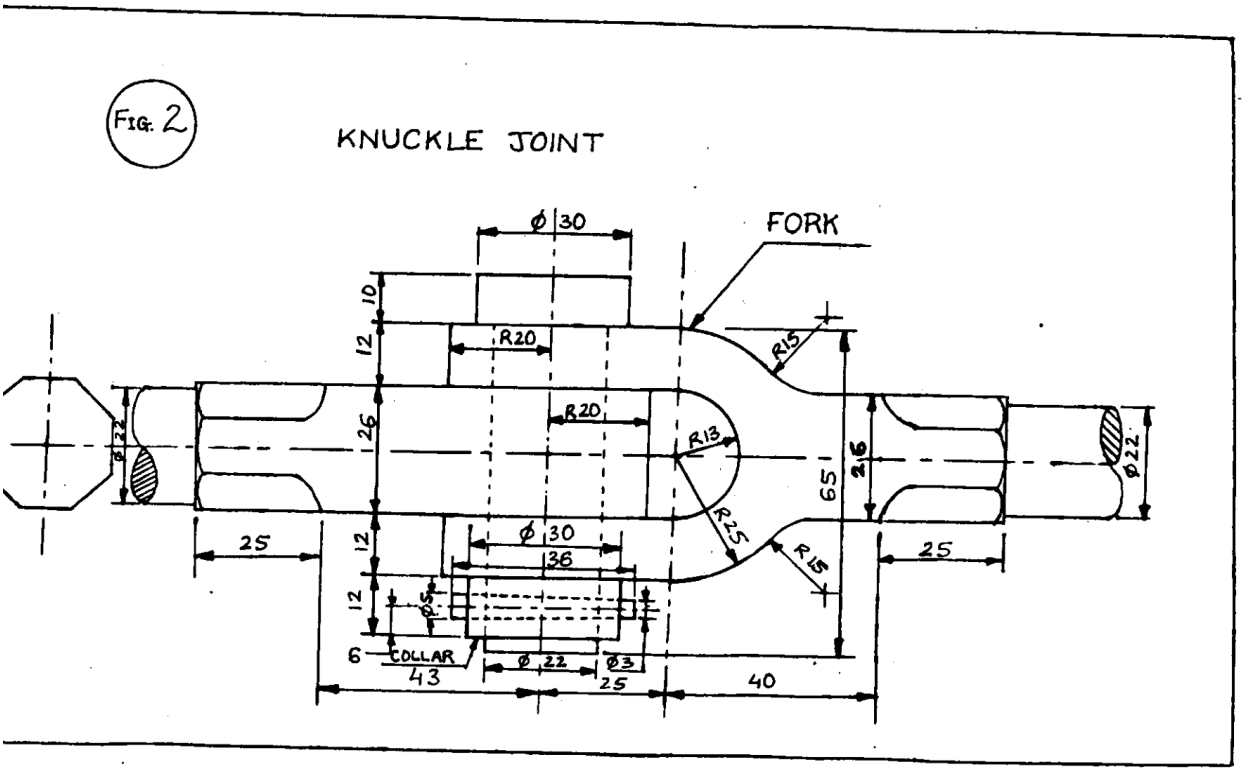
Drawing reference

Question 3 — Figure 1



Drawing reference

Question 3 — alternative — Figure 2



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