

CBSE Class 12 Engineering Graphics 2015 - 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) Follow the SP 46:2003 revised codes, with first-angle method of projection.
- (iii) Missing or mismatching dimensions, if any, may be suitably assumed.
- (iv) All dimensions are in millimetres.
- (v) Use the given dimensions in figures.

Questions

1. Answer the following Multiple Choice Questions. Print the correct choice on your drawing sheet.

1(i). Section area is shown by

- | | |
|------------------------------|---------------|
| (A) Sketching | (B) Colouring |
| (C) Hatching/section linings | (D) Dots |

1(ii). The end of the Stud which is screwed in the body of casting with threaded hole is called

- | | |
|---------------|---------------|
| (A) Nut end | (B) Metal end |
| (C) Close end | (D) Open end |

1(iii). In which of the following joints, a single line/row of rivets is used to join two plates together ?

- | | |
|------------------------------|------------------------------|
| (A) Zigzag joint | (B) Single riveted lap joint |
| (C) Double riveted lap joint | (D) Multiple riveted joint |

1(iv). The portion of the shaft which rotates in the sleeve/bush of a bushed bearing is called as

- | | |
|-------------|----------|
| (A) Journal | (B) Axle |
| (C) Rod | (D) Pipe |

1(v). Protected flange coupling is better than the unprotected flange coupling with regard to

- | | |
|----------------------------------|---------------------------|
| (A) Protection from dirt | (B) Protection from water |
| (C) Protection from fire hazards | (D) Ensure safety |

2(i). Construct an isometric scale.

2(ii). Draw the isometric projection of a frustum of a hexagonal pyramid (top base edge 30 mm, bottom base edge 40 mm, height 60 mm), keeping its axis perpendicular to H.P and two of its base sides parallel to V.P. Draw the axis and indicate the direction of viewing. Give all dimensions.

2(iii). A right circular cone (base diameter 50 mm, height 50 mm) is placed with its base resting centrally on the top rectangular face of a horizontal triangular prism (side of triangle 40 mm, length of the prism 70 mm), keeping triangular faces of the prism parallel to V.P. Draw the isometric projection of the combination of solids. Show the axis of each solid and indicate the direction of viewing. Give all dimensions.

3(i). Draw to scale 1 : 1, the standard profile of a **B.S.W. thread**, taking enlarged pitch as 40 mm. Give standard dimensions.

OR

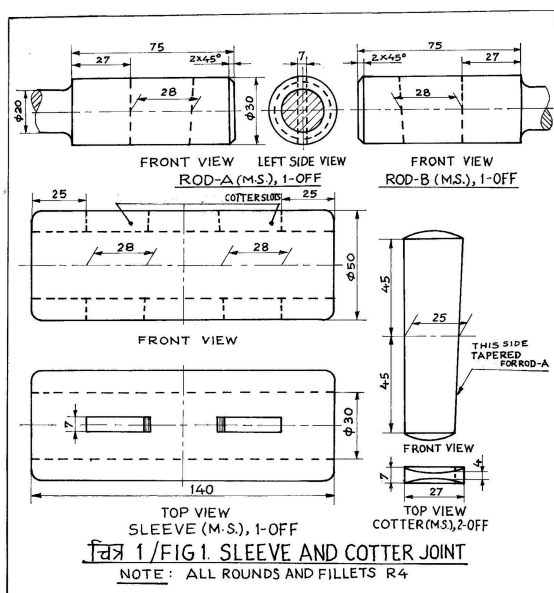
3(i). Draw to scale 1 : 1, the front view and side view of a **Hook bolt** of size M20, keeping the axis parallel to V.P and H.P. Give standard dimensions.

3(ii). Sketch freehand the front view of a **Socket head machine screw** of size M20. Keep the axis perpendicular to H.P. Give standard dimensions.

OR

3(ii). Sketch freehand the front view, top view and side view of a **Woodruff key**, suitable for a shaft of diameter 60 mm. Give standard dimensions.

4. Figure 1 shows the details of the parts of a **SLEEVE AND COTTER JOINT**. Assemble these parts correctly, and then draw the following views using scale 1 : 1.



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

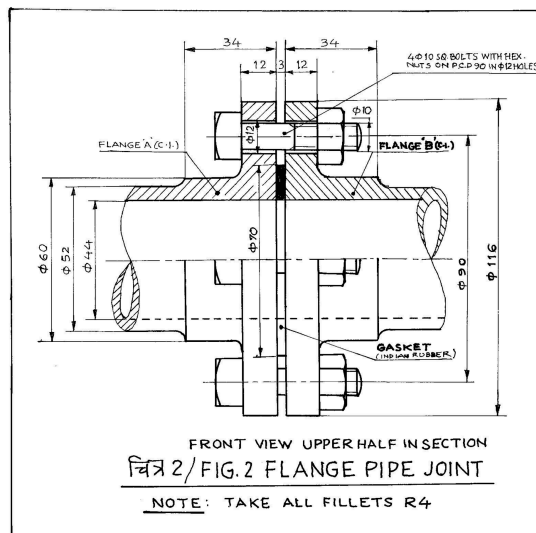
4(i). Front view, upper half in section.

4(ii). Right hand side view.

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

OR

4. Figure 2 shows the assembly of the parts of a **FLANGE PIPE JOINT**. Disassemble the parts and then draw the following views of the following components to scale 1 : 1, keeping them in the same position with respect to H.P. and V.P.



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

4(i)(a). FLANGE B :

Front view, upper half in section.

4(i)(b). FLANGE B :

Right hand side view.

4(ii)(a). GASKET :

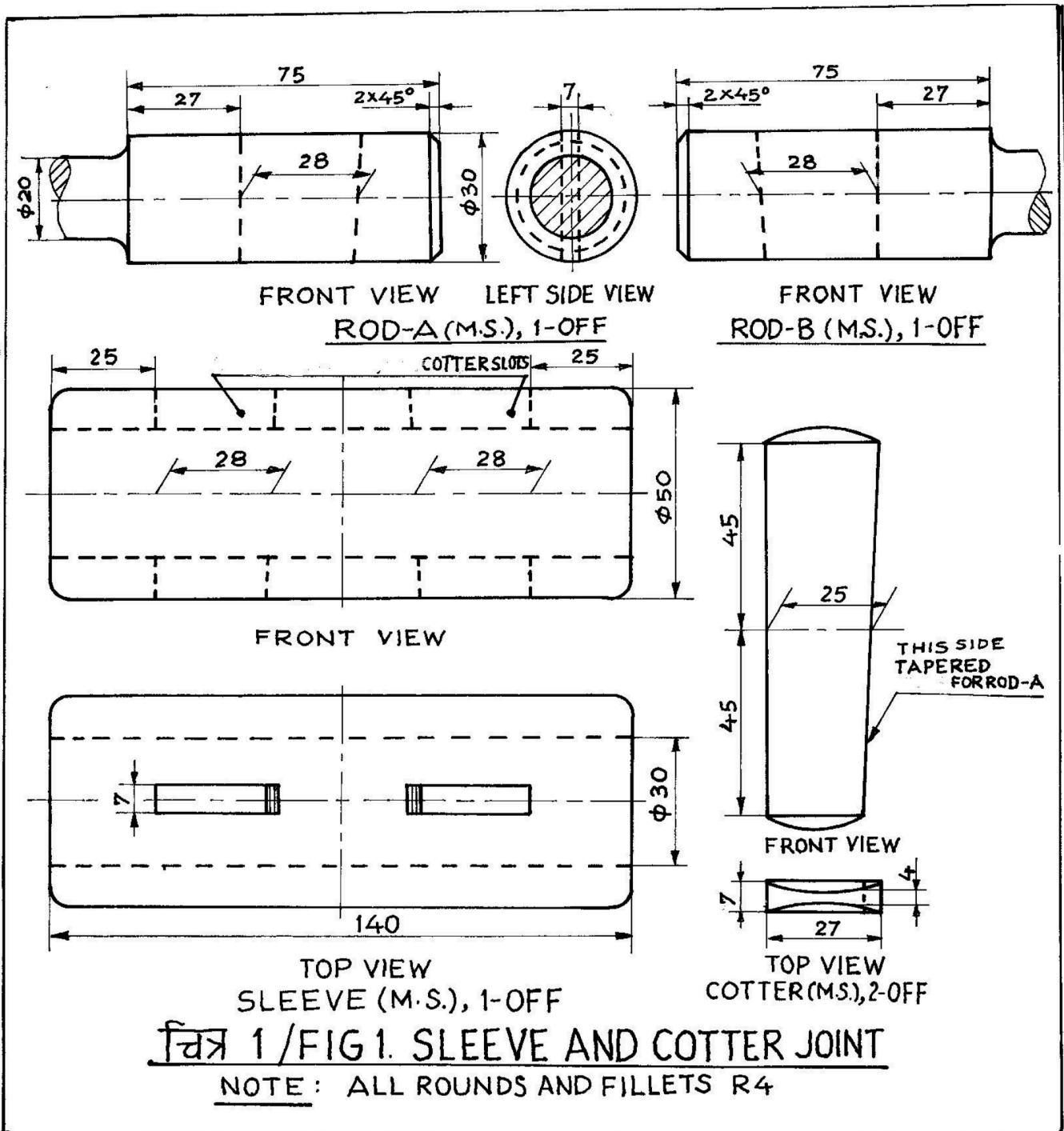
Full sectional front view.

4(ii)(b). GASKET :

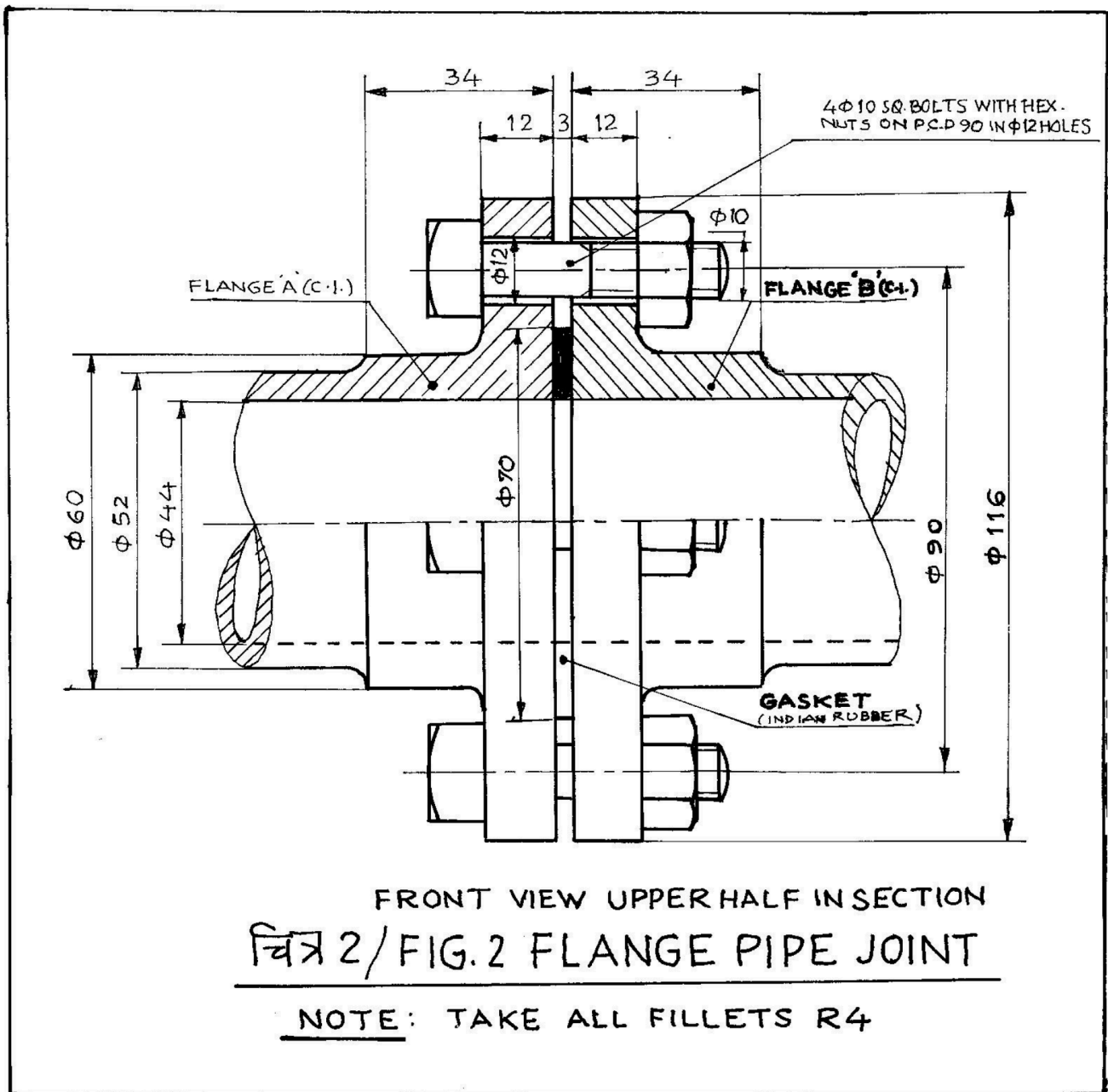
Left hand side view.

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

Question 4 — Figure 1



Question 4 — alternative — Figure 2



- End of Question Paper -