

CBSE Class 12 Engineering Graphics 2013 - Set 68/1



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 46:2003 revised codes, with first-angle method of projection.
- (vi) In Question 1, no hidden edges or lines are required.
- (vii) In Question 3, hidden edges or lines must be shown in views without section.
- (viii) Number your answers according to the questions.

Questions

1(scale). Construct an isometric scale.

1(a). Using it, draw the isometric projection of the following :

A frustum of square pyramid (base edge 60 mm, top edge 50 mm, height 70 mm) keeping it erect and its axis perpendicular to H.P. Two of its base edges are perpendicular to V.P.

Give all the dimensions, axis and direction of viewing for both (a) and (b).

1(b). Using it, draw the isometric projection of the following :

A hemisphere (diameter 80 mm) is placed centrally on the top hexagonal end of a hexagonal prism (base edge 30 mm, height 60 mm). The circular face of the hemisphere is upwards. Two of its base edges are parallel to V.P. The common axis is perpendicular to H.P.

Give all the dimensions, axis and direction of viewing for both (a) and (b).

2(a). Draw to scale 1:1, the standard profile of a BSW (British Standard Whitworth) thread (enlarged pitch 50 mm). Give all the standard dimensions.

OR

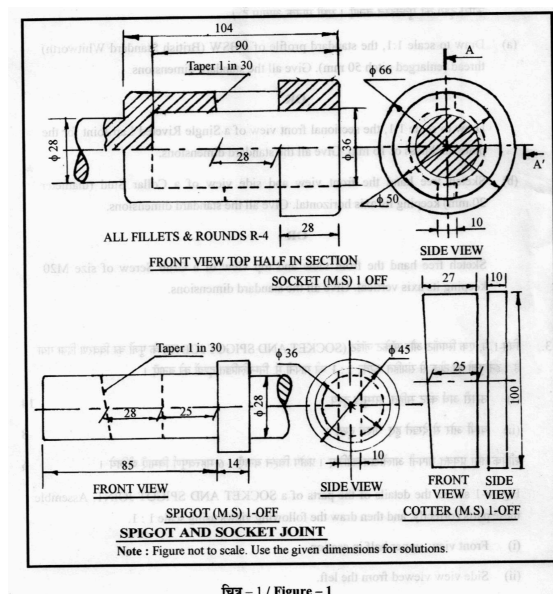
2(a). Draw to scale 1:1, the sectional front view of a Single Riveted Lap Joint for the plate thickness of 16 mm. Give all the standard dimensions.

2(b). Sketch free hand the front view and side view of a Collar Stud (diameter 20 mm) keeping its axis horizontal. Give all the standard dimensions.

OR

2(b). Sketch free hand the front view and top view of a Grub Screw of size M20 keeping its axis vertical. Give all the standard dimensions.

3. Figure-1 shows the details of the parts of a **SOCKET AND SPIGOT 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.

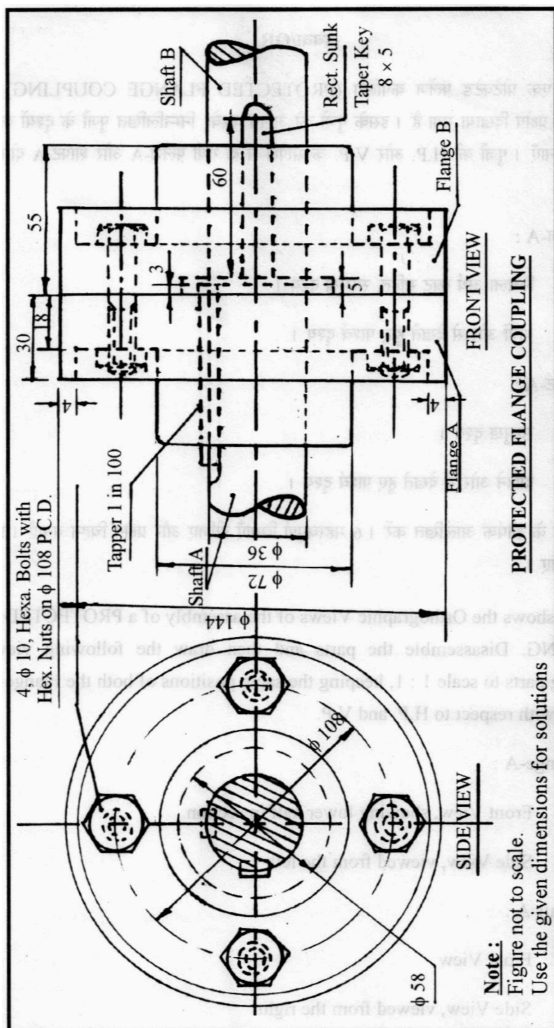
3(i). Front view, upper half in section.

3(ii). Side view viewed from the left.

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

OR

3. Figure-2 shows the Orthographic Views of the assembly of a **PROTECTED FLANGE COUPLING**. Disassemble the parts and then draw the following views of the following parts to scale 1 : 1, keeping the same positions of both the Flange-A and the Shaft-A, with respect to H.P. and V.P.



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

3(1)(i). Flange-A :

Front View, showing lower half in section.

3(1)(ii). Flange-A :

Side View, viewed from the left

3(2)(i). Shaft-A :

Front View

3(2)(ii). Shaft-A :

Side View, viewed from the right

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

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

4(i). What is the angle in degree between the Main Scale and Isometric Scale in the construction of Isometric Scale ?

- (A) 30° (B) 45°
(C) 15° (D) 90°

4(ii). What is the thread angle in degree of a Metric thread ?

- (A) 45° (B) 60°
(C) 75° (D) 90°

4(iii). What is the width of the Rectangular Sunk Key, if the diameter of the shaft is D ?

- (A) 1.5 D (B) D/8
(C) D/4 (D) D/6

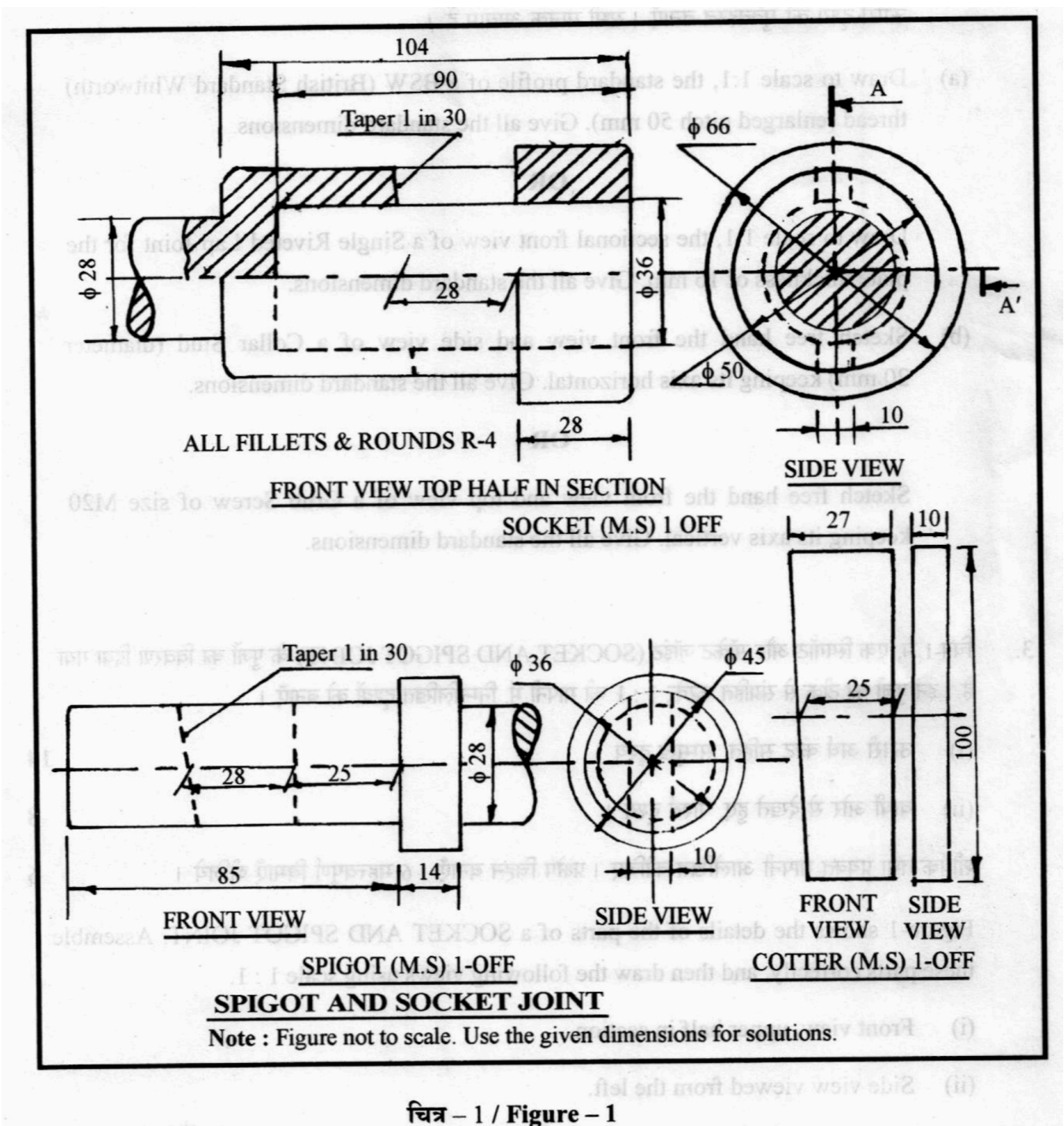
4(iv). In which type of bearing the Bush is split into two halves ?

- (A) Open Bearing (B) Simple Plummer Block
(C) Bushed Bearing (D) Footstep Bearing

4(v). What is the angle in degree of the groove in a V-belt pulley ?

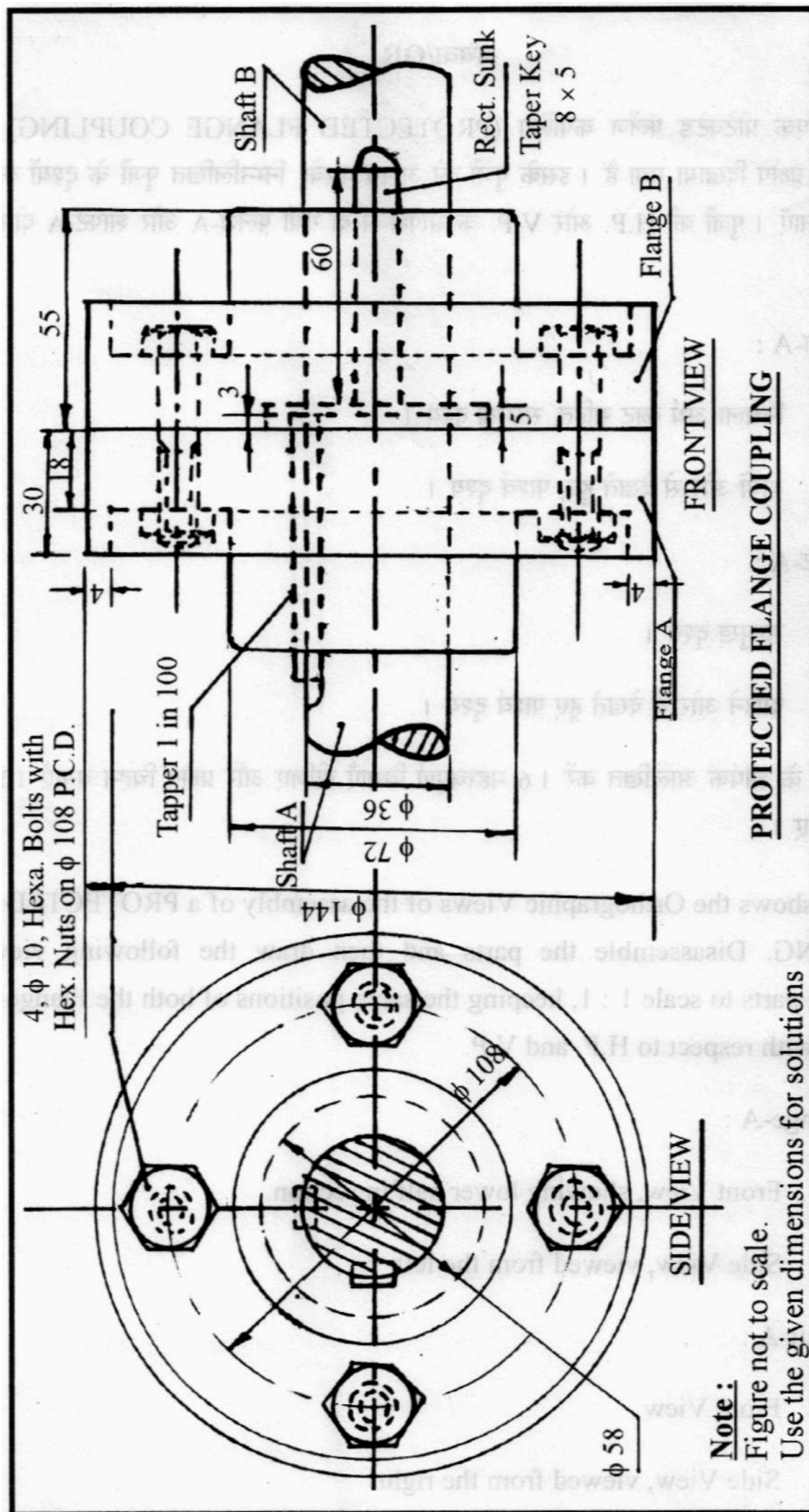
- (A) 40° (B) 90°
(C) 30° (D) 60°

Question 3 — Figure 1



चित्र - 1 / Figure - 1

Question 3 — alternative — Figure 2



- End of Question Paper -