

CBSE Class 12 Engineering Graphics 2017 - Set 68 - Compartment



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 2, no hidden edges or lines are required.
- (vii) In Question 4, hidden edges or lines must be shown in views without section.
- (viii) Number your answers according to the questions.

Questions

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

1(i). What is the included angle of a hexagon ?

- | | |
|----------------|----------------|
| (A) 30° | (B) 60° |
| (C) 45° | (D) 15° |

1(ii). Which joint is used to join two square shaft ?

- | | |
|---------------------|-------------------|
| (A) Flange coupling | (B) Knuckle joint |
| (C) Cotter joint | (D) Turnbuckle |

1(iii). What is the value of margin 'm' in a single riveted lap joint ?

- | | |
|---------------|-----------------|
| (A) $m = d$ | (B) $m = 1.5 d$ |
| (C) $m = 3 d$ | (D) $m = t$ |

1(iv). In bushed bearing the bush is generally made up with ?

- | | |
|---------------|----------------|
| (A) Cast Iron | (B) Mild Steel |
| (C) Brass | (D) Copper |

1(v). Which thread is usually used for power transmission among these ?

- | | |
|-------------------|--------------------|
| (A) Square thread | (B) Knuckle thread |
| (C) Metric thread | (D) BSW thread |

2(i). Construct an isometric scale of 50 mm length.

2(ii). A Frustum of a hexagonal pyramid (shorter base side 30 mm, longer base side 60 mm and height 80 mm) is resting on its longer base side on HP. Its two base sides are perpendicular to VP. Draw its isometric projection and give all dimensions. Indicate the direction of viewing.

2(iii). A right circular cone (diameter 50 mm and height 70 mm) resting centrally and vertically on the top of a cube of side 80 mm. The common axis are perpendicular to HP. Draw the isometric projection of the combination of solids. Show the common axis and indicate the direction of viewing. Give all dimensions.

3(i). Draw to scale 1:1 the standard profile of a **Knuckle Thread External**. Take enlarged pitch 40 mm. Give standard dimensions.

OR

3(i). Draw to scale 1:1 the front view and top view of a **plain washer** for a bolt of 20 mm diameter. Keep circular face of the washer parallel to VP. Give standard dimensions.

OR

OR

4 HOLES $\varnothing 12$ ON 106 PCD
AT EQUAL ANGLES

FLANGE C.I. -10FF

FLANGE C.I. -10FF

HEX. NUT
MS - 40FF

GASKET INDIAN
RUBBER -10FF

SQ HEADED
BOLT MS -40FF

NOTE : FIGURE NOT TO SCALE USE THE DIMENSION GIVEN

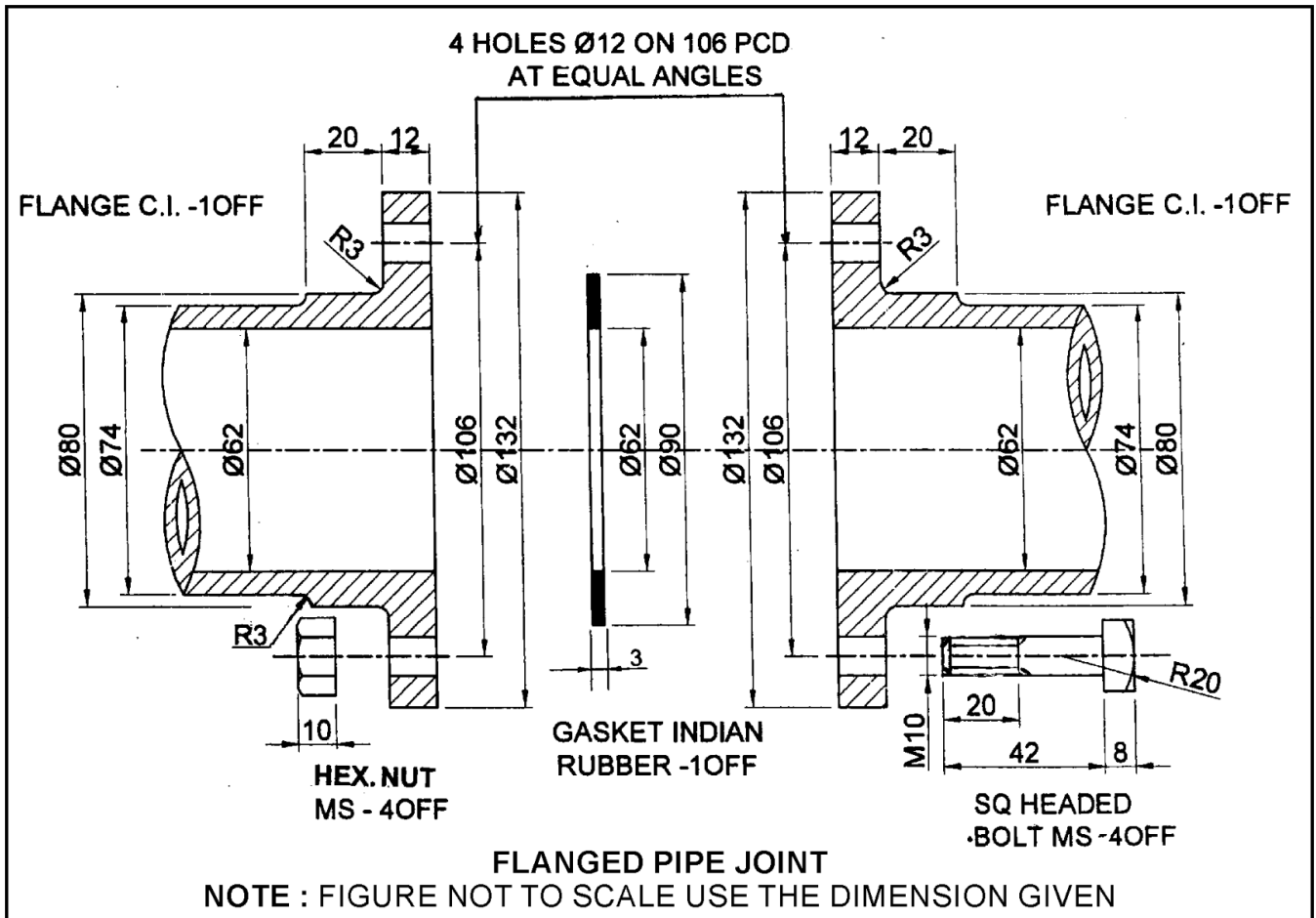
4(details). Print the title and the scale used. Draw the projection symbol. Give 6 important dimensions.

OR

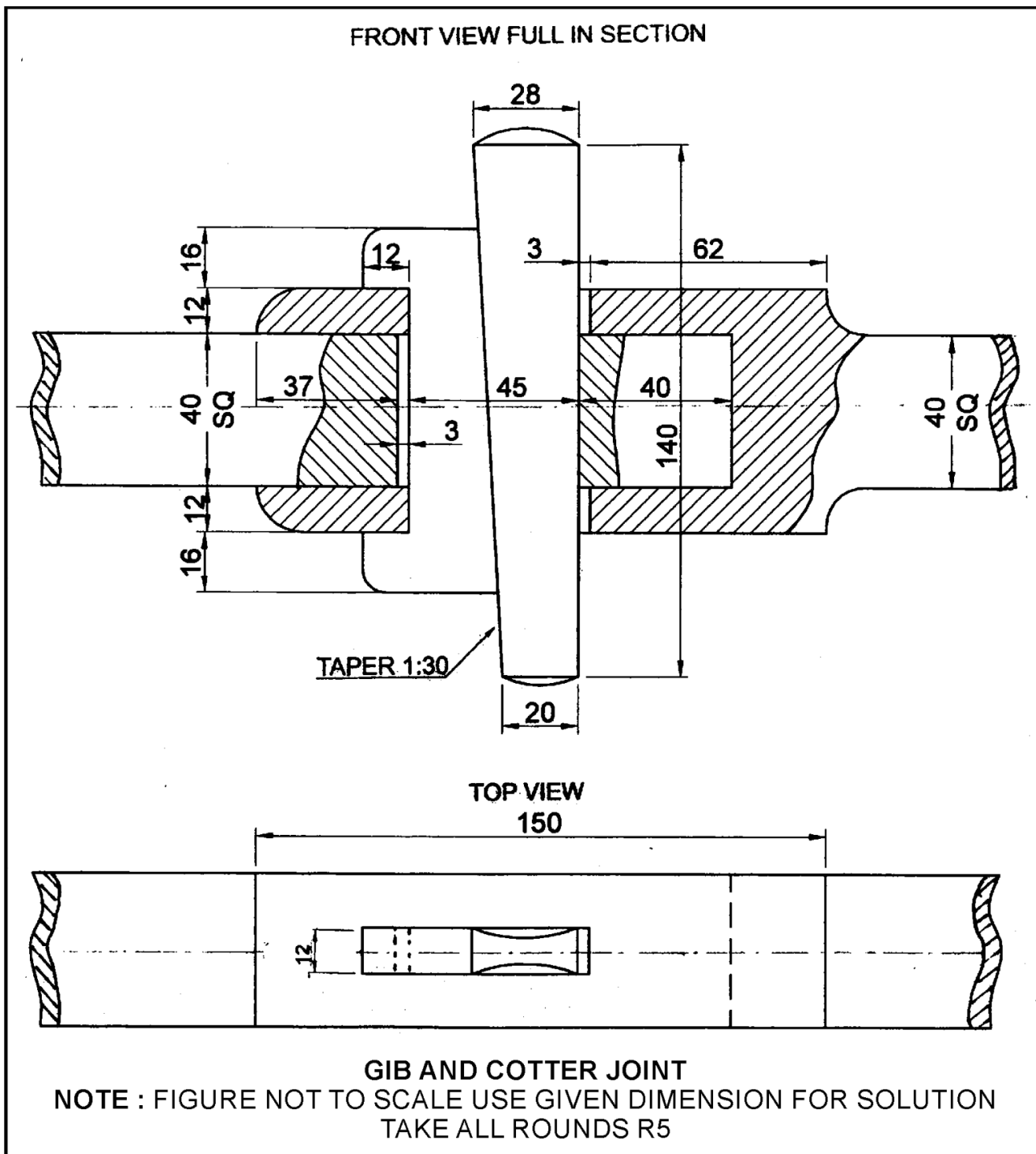
The drawing shows a GIB AND COTTER JOINT. The **FRONT VIEW IN SECTION** at the top shows a vertical cotter pin with a diameter of 28 at the top and 20 at the bottom, with a taper of 1:30. The cotter has a thickness of 3. It passes through two fork pieces. The left fork piece has a total width of 40, a central hole of 37, and a thickness of 12. The right fork piece has a total width of 40, a central hole of 140, and a thickness of 12. The distance between the inner faces of the fork pieces is 45. The total length of the assembly is 62. The top view at the bottom shows the overall length of 150 and the width of the cotter at the ends, which is 12. The drawing is a technical sketch with hatching for the fork pieces and a dashed line for the cotter's centerline.

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

Question 4 — Figure 1



Question 4 — alternative — Figure 2



- End of Question Paper -