

CBSE Class 12 Engineering Graphics 2019 - 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 46:2003 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). The projection generally used for engineering practice is

- | | |
|------------------------|----------------------------|
| (A) Picture projection | (B) Isometric projection |
| (C) Oblique projection | (D) Perspective projection |

1(ii). Which one among the following is called screw pair ?

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|--------------------|---------------------|
| (A) Bolt and nut | (B) Shaft and key |
| (C) Gib and cotter | (D) Rivet and plate |

1(iii). In a Hook bolt, the shank of the bolt

- | | |
|--|---|
| (A) Passes through a hole in one part only | (B) Passes through the holes in two parts |
| (C) Does not pass through any of the parts | (D) Passes through a key-hole |

1(iv). In bushed bearing, the sole of the bearing is recessed for

- | | |
|--------------------------|-------------------------------------|
| (A) Making it leak-proof | (B) Joining the shafts |
| (C) Fitting the bush | (D) Better stability on the surface |

1(v). The total number of components in turnbuckle assembly is

- | | |
|-------|-------|
| (A) 1 | (B) 2 |
| (C) 3 | (D) 4 |

2(i). Construct an isometric scale.

2(ii). An inverted frustum of a pentagonal pyramid (base edge 25 mm, top edge 40 mm and height 60 mm) is resting on H.P., with its axis perpendicular to H.P. One of its base edges is parallel to V.P. and nearer to the observer. Draw its isometric projection. Show the axis and indicate the direction of viewing. Give all the dimensions.

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

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

OR

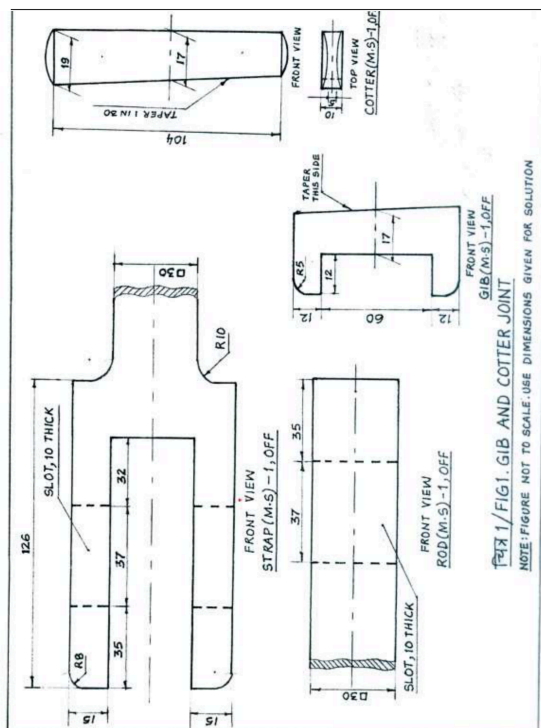
3(i). Draw to scale 1 : 1, the front view and side view of a **Hexagonal headed bolt** of diameter 20 mm, keeping the axis horizontal and parallel to both V.P. and H.P. Give standard dimensions.

3(ii). Sketch freehand the front view and top view of a **Stud with square neck** of size M20 mm, keeping the axis vertical. Give standard dimensions.

OR

3(ii). Sketch freehand the front view of a **Socket head machine screw** of size M10 mm keeping the axis horizontal and parallel to both V.P. and H.P. Give standard dimensions.

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

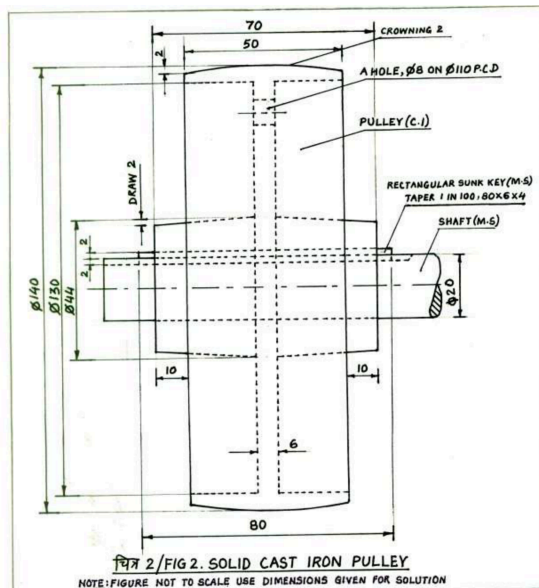


4(i). Front view, upper half in section.

4(ii). Left side view.

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

4. Figure 2 shows the assembly of a **SOLID CAST IRON PULLEY**. Disassemble the parts and then draw the following views of the following components to scale 1 : 1, keeping the same position of both Pulley and Rectangular taper key with respect to H.P and V.P



4(i)(a). PULLEY :

Front view, upper half in section.

4(i)(b). PULLEY :

Right side view.

4(ii)(a). RECTANGULAR SUNK TAPER KEY :

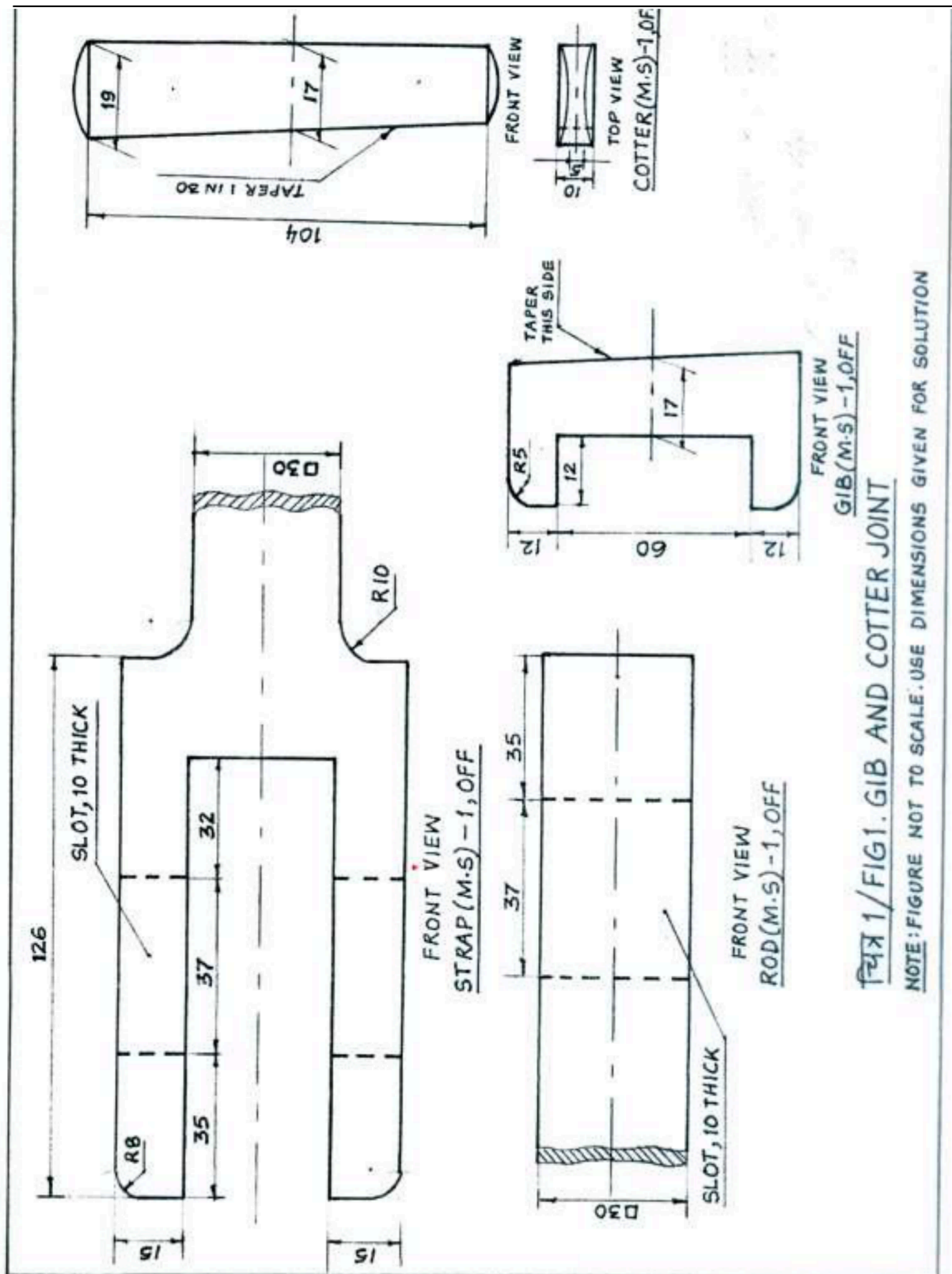
Front view.

4(ii)(b). RECTANGULAR SUNK TAPER KEY :

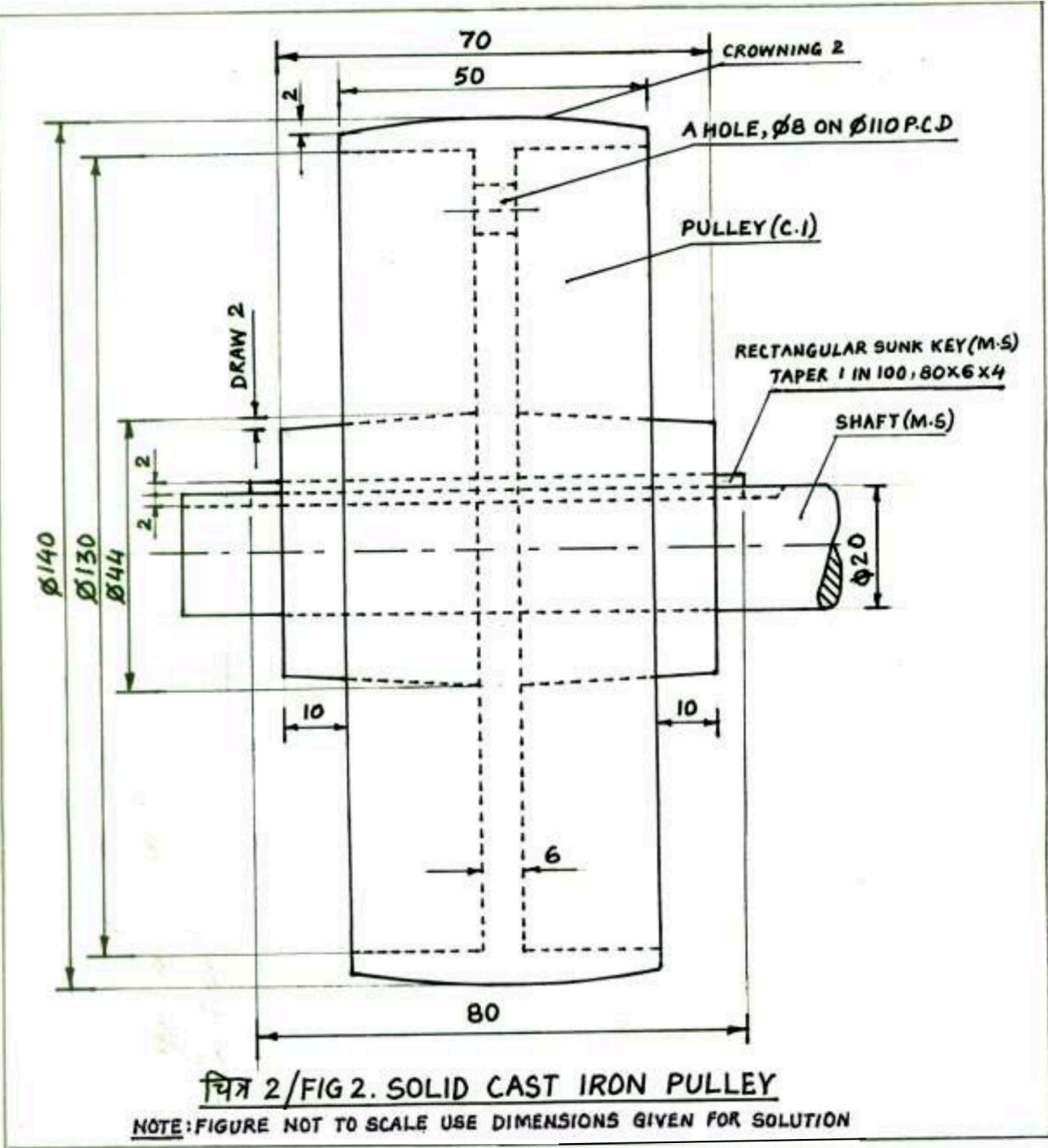
Left side view.

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

Question 4 — Figure 1



Question 4 — alternative — Figure 2



- End of Question Paper -