

2017

ENGINEERING DRAWING

(Theory)

Full Marks - 70

Pass Marks - 21

Time : Three Hours and *Fifteen Minutes

(*Fifteen minutes are given as extra time for reading questions)

INSTRUCTIONS:-

- i) Attempt **all** the questions.
- ii) All dimensions are in millimeters.
- iii) Missing and mismatching dimensions, if any, may be suitably assumed.
- iv) Use both sides of the drawing sheet, if necessary.
- v) Follow the SP: 46-1988 Codes, (With first angle method of projection) if not mentioned.

1. (a) Construct an isometric scale. 4
- (b) Draw an isometric projection of a cylinder having base 40mm and height 78mm. The axis of the cylinder is perpendicular to H.P. and parallel to V.P. Give all dimensions. 8

(c) A cylinder, base diameter 90mm and height 30mm , is resting on one of its circular ends on H.P. An equilateral triangular prism, base side 40mm and height 50mm with its axis perpendicular to V.P. and having a rectangular face resting centrally, on the top circular face of the cylinder. Draw the isometric projection of the two solids, placed together, to isometric scale. Draw the axis of both sides and indicate the direction of viewing. Give all dimensions. 13

2. (a) Draw to scale 1 : 1, the front view and side view as viewed from chamfered end side of a hexagonal headed bolt of size M 30, keeping its axis horizontal and parallel to V.P. Give standard dimensions. 9

OR

Draw to scale 1 : 1, the standard profile of a British Standard Whitworth (B.S.W) thread, taking pitch = 50mm . Give all standard dimensions. 9

(b) Sketch freehand the front view and left hand side view of 60° countersunk flat Head rivet of diameter 25mm , keeping its axis parallel to H.P. and V.P. Give standard dimensions. 6

OR

Sketch freehand the front view of Collar stud of size M 20, keeping its axis horizontal. Give all dimensions. 6

3. **Figure - 1** shows the details of the parts of a Protected Type Flange Coupling. Assemble these parts correctly and then draw to scale 1 : 1 its following views.

a. Front view, upper-half in section.

b. Side view as seen from left.

Write heading and scale used. Draw the projection symbol. Give all dimensions.

30

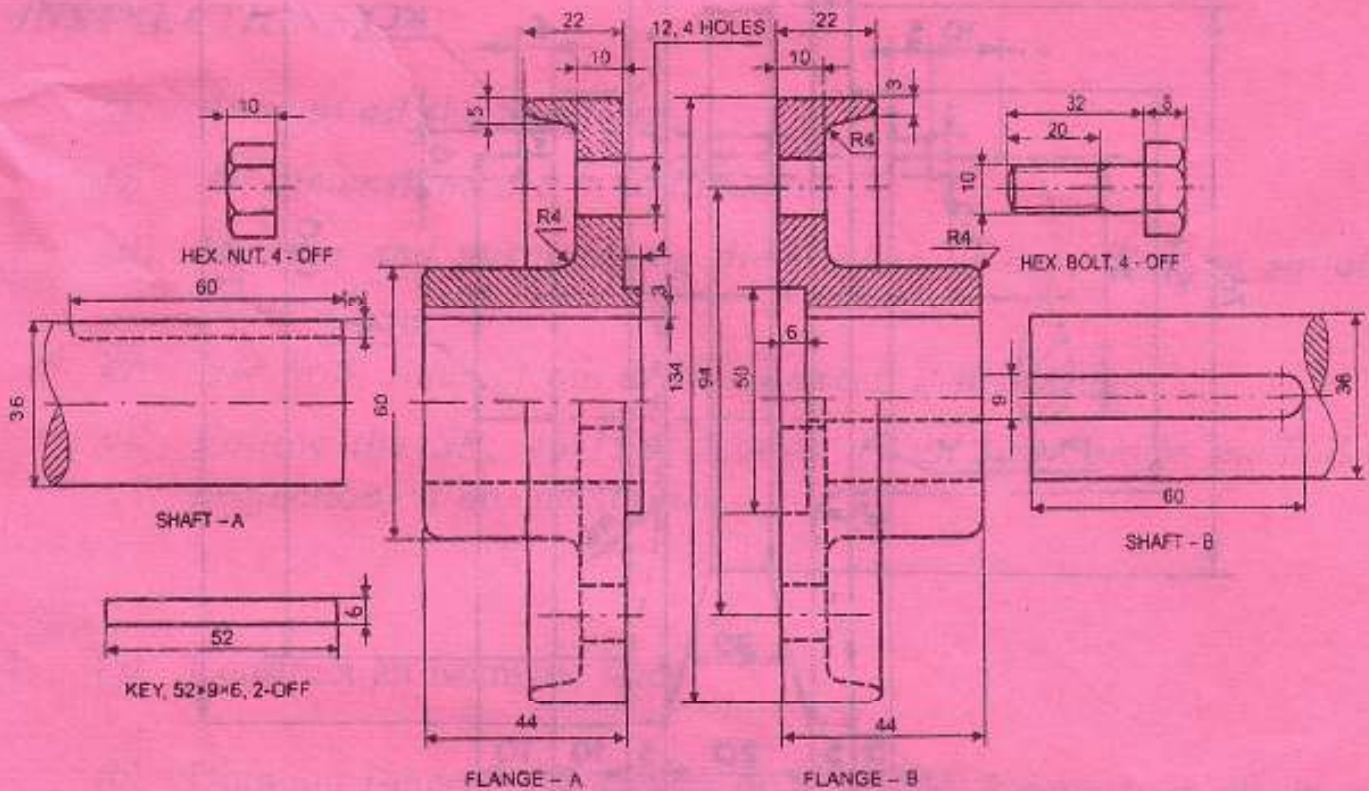


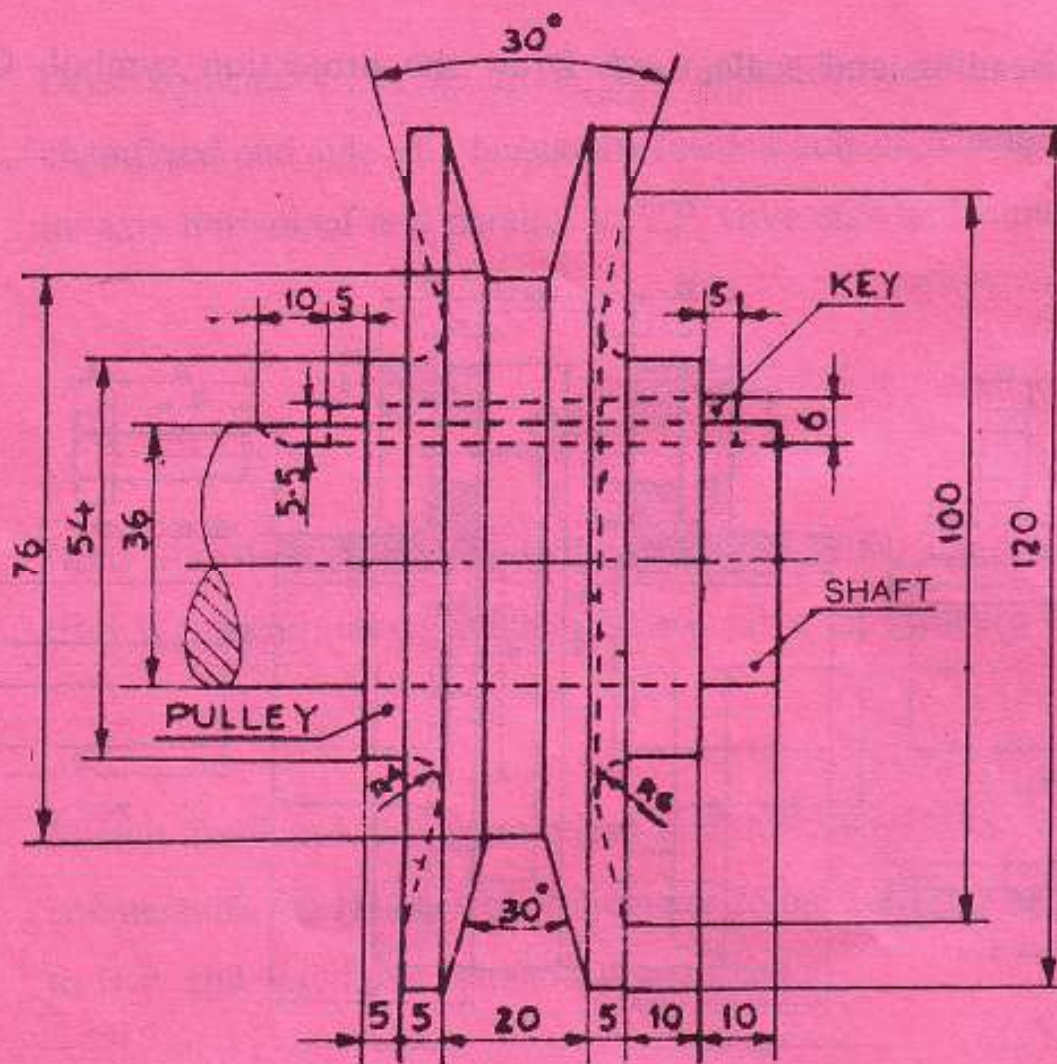
Fig. 1 PROTECTED FLANGE COUPLING (DETAILS)

Figure - 1.

OR

Figure 2. shows the front view of the assembly of a single grooved V – belt pulley. Disassemble its parts correctly and draw to full size scale the following, without changing the position of the parts with respect to H.P. and V.P. (Given Width of the KEY = 9mm)

- i. Pulley : Front view upper half section and its side view, as viewed from the left of pulley,
- ii. Shaft : Front view and its side view as viewed from right of shaft. Give all important dimensions.



SINGLE GROOVED V-BELT PULLEY, SHAFT, KEY
(ASSEMBLY)

Figure 2.