2020

ENGINEERING DRAWING

(Theory)

Full Marks : 70

Pass Marks : 21

Time : Three hours

Isntructions :

(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 – 2003 revised Codes, (With first angle method of projection) if not mentioned.
(vi) In question 4, hidden edges or lines are to be shown in views without section.

1. Answer the following Multiple Choice Questions. Rewrite the correct answer on your drawing sheet. 1×5=5

(i) The projection generally used for engineering practice is

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

(ii) How many groups of solids are classified in Engineering graphics ?

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

(iii) The part which connects adjacent flanks at the bottom of the groove thread is called _____ .

(A) Flank (B) Crest
(C) Pitch (D) Root

(iv) At what angle hatching lines drawn to the main outline of section ?

(A) 30° (B) 45°

(C) 60° (D) 90°

(v) What is the purpose of oil hole in a Bushed Bearing ?

(A) to provide clearance

(B) to pour oil which reduces the friction between the shaft and the bush

(C) to join the bush to the base

(D) none of these

2. (A) Construct an Isometric scale. 3

(B) Construct the isometric projection of a hemisphere of 50 mm diameter, resting on its curved surface on H.P. and flat circular face upwards parallel to H.P. Give all dimensions. 7

(C) An equilateral triangular prism, base side 80 mm and height 50 mm, rests on its base on H.P. with a rectangular face parallel to V.P. and nearer to the observer. A cylinder of base diameter 60 mm and height 75 mm with its vertical, is resting centrally on the top end of the prism, with the common axis vertical. Draw its isometric projection. Give all dimensions. 13

3. (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 all dimensions. 8

OR

Draw to scale 1:1, the standard profile of a Knuckle Thread, taking pitch = 40 mm. Give all standard dimensions. 8

(B) Sketch freehand the front view and top view of a grub screw of size M 20, keeping its axis vertical. Give all standard dimensions. 6

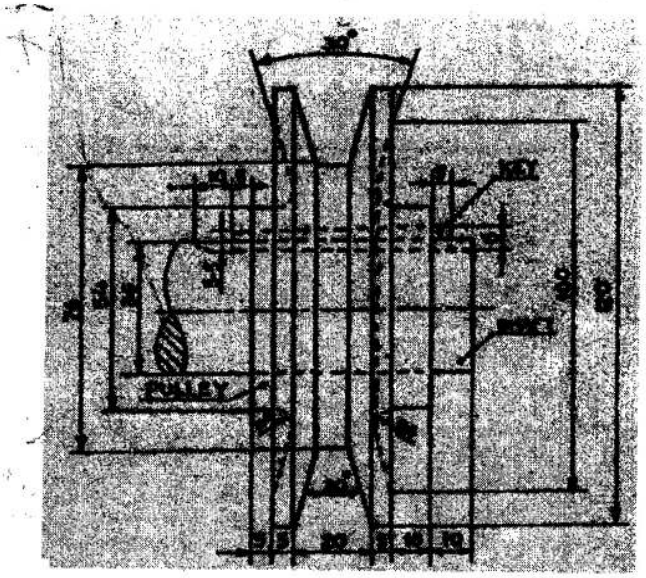
OR

Draw to scale 1 : 1, the front view and top view of a Flat Head rivet, taking diameter as 25 mm, keeping its axis vertical. 6

4. Figure 1. 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 = 9 mm)

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. 28
Give all important dimensions.



Single Grooved V-Belt Pully, Shaft, Key

Fig. 1

OR

Figure 2. shows the assembly of a Socket and Spigot Joint. Disassemble its parts correctly and then draw the following to scale 1: 1, without changing their potion, with respect to H.P. and V.P. :

(A) Socket: Front view, lower half in section and side view as seen from the left and its top view.

(B) Spigot: Front view, upper-half in section, side view as seen from the left and its top view.

(C) Cotter: Front view and top view.

Print heading and scale used. Give all dimensions. 28

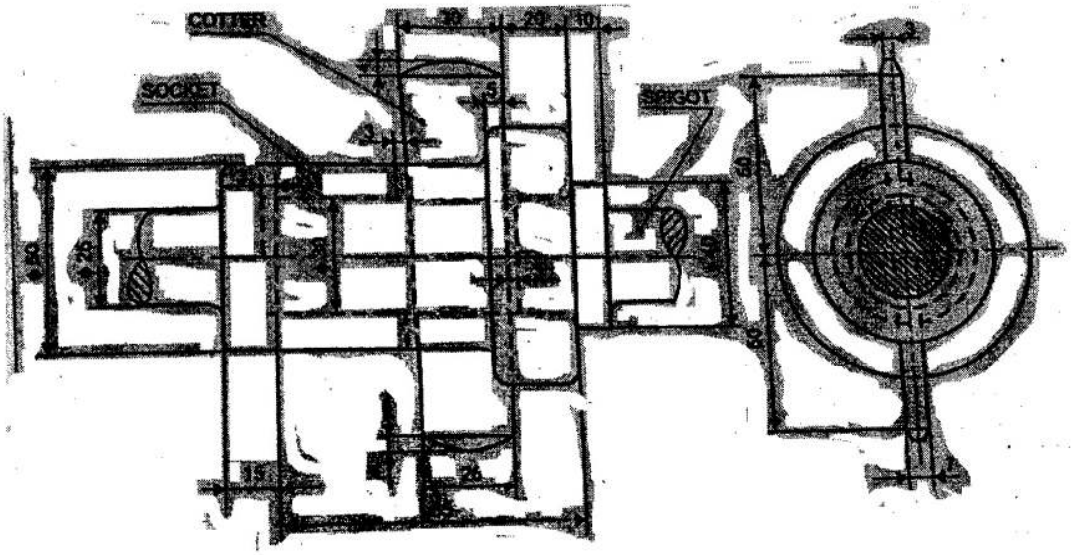


Fig. 2