

337352(37)

B. E. (Third Semester) Examination, April-May 2020

(New Scheme)

(Mech., Production & Automobile Branch)

MACHINE DRAWING

Time Allowed : Four hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all the questions. Part (a) of each question is compulsory. In Q.1 and Q.2, attempt any two from (b), (c) and (d). In Q.3 and Q.4, attempt any one from (b) and (c). Assume suitable data if found missing or needed and mention it clearly at the respective place(s).

Unit-I

1. (a) Differentiate between the following : 4
- (i) 'Geometrical' and 'Dimensional' Tolerances
 - (ii) 'Single Start' and 'Multiple Start' Threads

- (b) Distinguish between the following with the help of giving their respective representation drawing : 6
- (i) Ball Bearing and Roller Bearing
 - (ii) Internal Thread and External Thread
 - (iii) Straight Knurling and Diamond Knurling
- (c) Make a distinction between the following with the help of their respective representation drawing : 6
- (i) Radial Run-out and Axial Run-out
 - (ii) Concentricity and Coaxiality
 - (iii) Circularity and Cylindricity
- (d) How the symbol of surface texture is shown? What are the various terminologies included in the symbol? Also draw the symbol for a surface texture of a flat surface which is to be machined by milling process with machining allowance of 1.5 mm and surface lay perpendicular to plane of projection of the view of the surface. 6

Unit-II

2. (a) Mention the basic purpose of following types of sectional views : 4
- Broken Section,
 - Half Section,

Removed Section,
Revolved Section

- (b) (i) What do you mean by Hatching? Why it is used? 2
- (ii) If three or more surfaces of an object of single material are sectioned, then how these are shown in the drawing? 2
- (iii) Draw conventions of section lines for porcelain material and insulating material. 2
- (c) Draw the following orthographic views of the isometric view (as shown in figure 1), using FIRST ANGLE projection method : 6
- (i) Full sectional front view along A-B
 - (ii) Top view

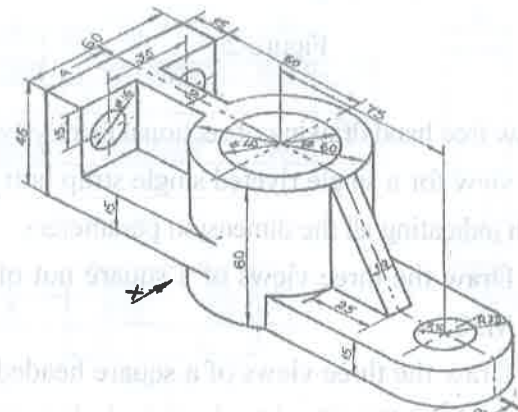


Figure-1

[4]

(d) Draw the following orthographic views of the isometric view (as shown in figure 2), using THIRD ANGLE projection method : 6

(i) Sectional Front View

(ii) Top view

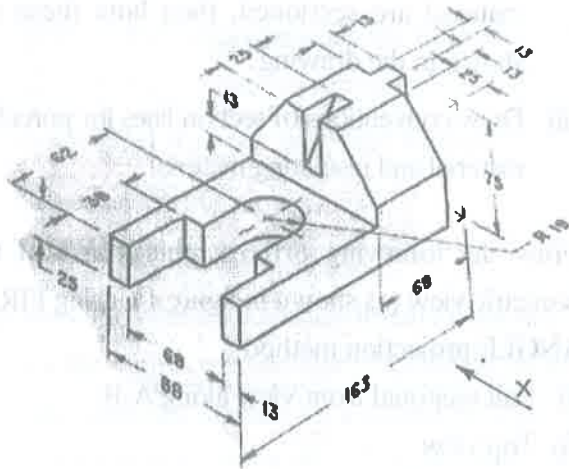


Figure-2

3. (a) Draw free hand drawing of sectional front view and top view for a single riveted single strap butt joint with indicating all the dimension parameters. 4

(b) (i) Draw the three views of a square nut of size M30. 4

(ii) Draw the three views of a square headed bolt of size M30. The length of the bolt is 90 mm and thread length is 64 mm. 8

337352(37)

[5]

(c) Draw the three views of an assembly of hexagonal headed bolt with hexagonal nut. Diameter and length of the bolt are 24 mm and 100 mm respectively. Axis of the bolt is parallel to both HP and VP. Assume suitable thread length. 12

4. Part (a) is compulsory; attempt any one from (b) and (c). Note that part (b) has two sub-parts (i) and (ii) of 14 marks each; with a total of 28 marks.

(a) What do you mean by 'Bill of Materials'? How it is prepared and what is its importance? 4

(b) (i) Draw sectional front view, top view and left side view assembly drawings from the following detailed drawing of sleeve and cotter joint (figure 3) : 14

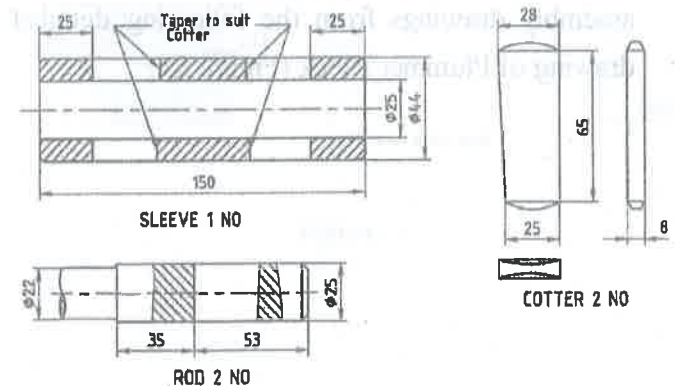


Figure-3

337352(37)

PTO

[6]

- (ii) Draw upper half sectional front view and side view assembly drawings from the following detailed drawing of protected flanged Coupling (Figure 4) :

14

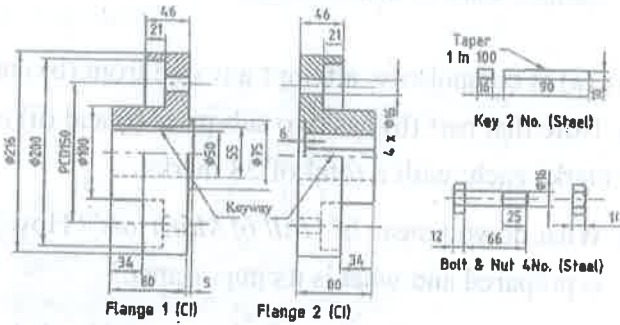


Figure-4

Or

- (c) Draw left half sectional front view and top view assembly drawings from the following detailed drawing of Plummer Block (Figure 5) :

28

[7]

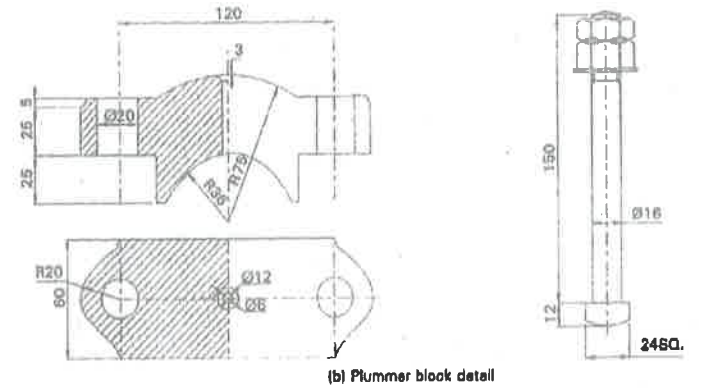
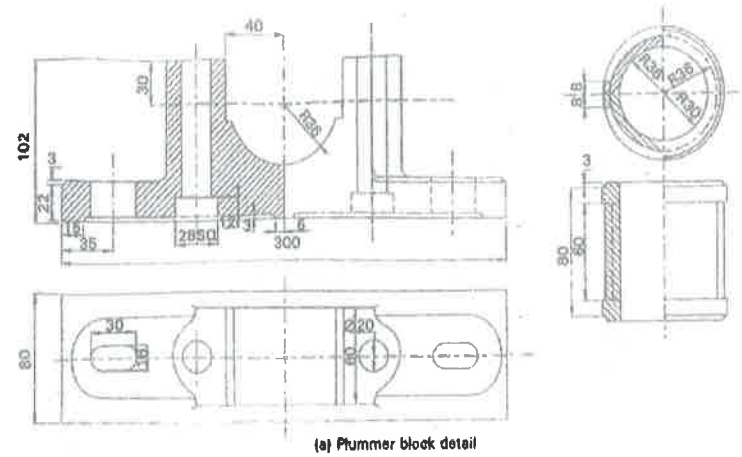


Figure-5