# M.E. First Semester (Production Tech. \& Mgr.) (P.T.) (CBS) <br> 13530 : Advanced Metal Cutting and Welding Technology : 1 SPTM 1 

P. Pages : 2

AW -3692
Time : Three Hours
4
Max. Marks : 80
Notes: 1. Answer three question from Section $A$ and three question from Section B.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.

## SECTION - A

1. a) How can you graphically find out the various components of the resultant force from the Merchant circle?
b) What is meant by power consumed in metal cutting? What are its various components.
2. a) Draw a circular or flat form tool for producing 90 degree $V$ groove of 10 mm depth in a work piece of 60 mm diameter and 90 mm length. The groove is to be produced at the center of the workpiece.
b) What are the basic functions of cutting fluids? How are the cutting fluids classified?
3. a) With suitable example, explain how a single point tool is designed.
b) What are the important properties of tool materials?
4. a) What is up milling and down milling?
b) How will you calculate the number of cutting and finishing teeth for producing a hole of 30 mm Diameter and 30 mm length?
5. Show the geometric elements of tools with neat sketches :- I
i) Thread cutting die.
ii) Straight fluted reamer cutter with straight shank.
iii) Twist drill point.

## SECTION - B

6. Design a solid drill jig for drilling 1 hole of 10 dia. in the stem of the Pin shown in fig. E3. location, (ii) The type of the locator used for location, (iii) The surface selected for clamping, (iv) Type of clamp used. (v) Type of jig.

7. Design a Milling Fixture for Milling Flat in the Flange of the Pin shown in fig. E3. The part $\mathbf{1 3}$
is complete except this operation Mention clearly in words (i) The surface used for location,
(ii) The type of the locator used for location, (iii) The surface selected for clamping,
(iv) Type of clamp used. (1) Type of Iixture used.
8. a) What are jigs and fixtures? What advantages can be achieved from them?
b) What are the different types of Clamps? Explain any one with neat sketch?
9. What are the different types of drill jigs? Explain any one with neat sketch? 13
10. a) What is soldering and brazing how it differs from arc welding? 7
b) What is Electro chemical machining? Explain.
