M.E. First Semester (Production Tech. & Mgt.) (P.T.) (CBS)

13530 : Advanced Metal Cutting and Welding Technology : 1 SPTM 1

P. Pages : 2 | **AW - 3421**

Time : Three Hours | * 0 7 2 8 * | Max. Marks : 80

Notes : 1. Answer **three** question from Section A and **three** question from Section B.
2. Assume suitable data wherever necessary.
3. Diagrams and chemical equations should be given wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.
5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) What is orthogonal cutting? Show the different Forces acting on the cutting tool during orthogonal cutting. **8**

   b) Describe the factors affecting machinability. **5**

2. a) How cutting fluids increases tool life & machinability? Explain. **5**

   b) Explain chip formation during metal cutting, what is chip thickness ratio. **8**

3. a) Describe the importance of different angles of single point cutting tool, which are different types of rake angle on single point cutting tool? **8**

   b) Explain any two types of tool materials with their properties & characteristics. **5**

4. a) What is broaching tool? Explain the advantages and limitations of broaching. **7**

   b) Which are the design criteria's considered for designing plain milling cutter? **6**

5. With suitable sketch, explain the nomenclature of **14**

   a) Milling cutter

   b) Twist Drill

SECTION - B

6. a) Describe the design criteria for the following- **8**

   i) Milling fixture

   ii) Welding fixture

   b) Explain the various principles of clamping, which are different types of clamps? **5**

7. a) Differentiate between Jigs & fixtures. What are the different types of drill Jigs? 7

   b) Explain the principle of minimum locating points, quoting suitable examples. 6

8. a) What is meant by Non traditional metal shaping processes? How they are differ from traditional metal shaping processes? Discuss the importance of them. 8

   b) How will you design turning fixture for Lathe. 5

9. a) Discuss the effects of welding heat on the work material as well as weld joint & weld bead. 5

   b) Why following welding defects occurs? 8

   i) Porosity ii) Cracking

   iii) Blow holes iv) Poor weld bead

10. a) What is Arc welding principle? Explain plasma arc welding with it's advantages & applications. 7

    b) Which are radiant energy welding processes? Explain any one with its setup. 7

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