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B.E/ B.Tech DEGREE EXAMINATIONS, APR/MAY 2014

Second Semester(R-2012)

Manufacturing Engineering

**MF8201 –MACHINE TOOLS AND PROCESSES**

Time: 3 hrs

Max.Mark:100

Answer ALL questions.

**PART A-(10 × 2 = 20 marks)**

1. Mention two important applications of cutting fluids.
2. Define “oblique cutting”.
3. What are the functions of feed rod and lead screw?
4. Make a short note on principle of thread cutting.
5. Define “climb milling”.
6. Based on type of cutting stroke classify shapers?
7. Write short note on honing?
8. What is meant by ‘grade’ and ‘structure’ of grinding wheel?
9. Write short note on Ultra precision machining.
10. What is meant by self-adjusting feature of ECM?

**PART-B (5 x 16 =80 Marks)**

11. i) Derive the relationship for shear angle. (8)
- ii) Tool life tests in turning yield the following data:(1)  $V = 120\text{m/min}$ ,  $T = 12\text{ min}$ ;(2)  $V = 80\text{ m/min}$ ,  $T = 29\text{ min}$ . (a) Determine the  $n$  and  $C$  values in the Taylor tool life equation. Based on the equation, compute (b) the tool life for a speed of  $100\text{ m/min}$  and (c) the speed corresponding to a tool life of  $20\text{ min}$ . (8)
- 12.a) i) Explain the salient features of an automatic screw machines. (8)
- ii) Show with neat sketches the constructional features of a twist drill and label the important features. (8)

Or

b. Name the different methods of taper turning done on a centre lathe and explain any two methods with neat sketch. (16)

13. a i) Describe the method of producing curved surface on a planer. (8)

ii) Discuss with neat sketch Vertical Broaching machine. (8)

**Or**

b. i) Classify milling machines. Sketch and describe principal parts of a column and knee type machine. (8)

ii) Explain Whitworth quick return mechanism used in shaper. (8)

14. a.i) What are the various factors to be considered in selection of grinding wheel? Discuss each in detail. (8)

ii) List out the gear finishing processes. Explain any two with neat sketches. (8)

**Or**

b. i) State different kind of abrasives used in a grinding wheel. (8)

ii) Explain centreless grinding process with a neat sketch. (8)

15. a.i) Enumerate the Ultrasonic machining equipment with neat sketch (8)

ii) Briefly explain Hard turning process. (8)

**Or**

b.i) Briefly explain the advantages and limitations of the LBM process. (8)

ii) Sketch on Electron Beam Machining process and mention its basic units. (8)

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