Code No. : **6305**

FACULTY OF ENGINEERING
B.E. 3/4 (Prod.) I Semester (Suppl.) Examination, July 2010
MACHINE TOOL ENGINEERING

Time: 3 Hours] [Max. Marks: 75

Note : *1) Answer **all** questions from Part – **A***
*2) Answer **Five** questions from Part – **B**.*

PART – A **25**

1. What are the different types of cutting fluids used in machining ? Mention their influence on environmental aspects. **3**
2. How friction between tool-work and tool-chip interface effect the machining performance ? **3**
3. What is the influence of rake angle on machining performance ? **2**
4. What are the reasons for cutting tool failure ? **2**
5. Show any four operations that can be performed on lathe machine with neat sketch. **2**
6. Explain any one of the taper turning methods. **3**
7. What are the operations that can be performed on drilling machine ? **2**
8. Mention different gear manufacturing methods. **3**
9. Sketch and explain any two tool holding devices used in slotting machine. **3**
10. How do you classify grinding machines ? **2**

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PART – B 50

11. a) Draw Merchant's circle and give force relations. Also maintain assumptions in Merchant's theory. 5

b) Explain any one method to measure tool temperature in machining with diagram. 5

12. a) What is tool life ? Mention Taylor's tool life equation. Explain all the factors affecting the tool life. 6

b) Explain any one method of measuring flank wear and crater wear. 4

13. a) What is tool layout ? Write the tool layout for producing hexagonal nut. 5

b) Sketch and explain construction and working of multi spindle automatic lathe. 5

14. a) Sketch and explain construction and working of radial drilling machine. 6

b) Differentiate up milling and down milling. 4

15. a) What are the different artificial abrasives used in grinding wheels ? what are their advantages ? 5

b) Explain different types of bonds used in grinding wheels. Also specify their advantages and limitations. 5

16. In orthogonal turning operation following data are observed.
Workpiece diameter = 50mm, speed = 100m/min, feed = 0.25 mm/rev, rake angle = 15^0, Chip thickness = 0.25 mm, cutting force = 200 N, feed force = 60N. Calculate shear plane angle, coefficient of friction,cutting power, chip flow velocity and shear force. 10

17. a) What are the different work holding devices used in shaping machine ? 5

b) Explain single point cutting tool nomeclature. 5

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