

--	--	--	--	--	--	--	--	--	--

Fourth Semester B.E. Degree Examination, May/June 2010
Manufacturing Processes – II

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
 at least TWO questions from each part.**

PART – A

- 1 a. With a neat sketch, explain the various parameters which make up the tool signature of a single point cutting tool. (08 Marks)
- b. Derive an expression for the shear angle in orthogonal cutting, in terms of rake angle and chip thickness ratio. (08 Marks)
- c. Explain the functions of cutting fluids. (04 Marks)
- 2 a. Explain the factors which affect the machinability of a material. (08 Marks)
- b. A cast iron bar stock was turned at 50 m/min, for which, the tool life was 3 hours. For the same material, at 40 m/min, the tool life was 5 hours. Find the value of constant c and n in the Taylor's tool life equation. Also, state the type of tool material based on the value of n. (08 Marks)
- c. With neat sketches, explain flank and crater wear (04 Marks)
- 3 a. With the help of a neat sketch, explain the turret indexing mechanism. (08 Marks)
- b. Explain the working of a hydraulic shaper mechanism, with a neat sketch. (08 Marks)
- c. Compare shaper and planer in terms of their operation, type of workpiece and applications. (04 Marks)
- 4 a. Draw a neat diagram of a radial drilling machine. Name all the parts and explain the principle of operation. (08 Marks)
- b. Explain the following operations, with simple sketches :
 i) Reaming ; ii) Boring ; iii) Counterboring ; iv) Trepanning. (08 Marks)
- c. Sketch and explain the nomenclature of a twist drill. (04 Marks)

PART – B

- 5 a. Differentiate between :
 i) Up – milling and down milling
 ii) Simple indexing and compound indexing. (08 Marks)
- b. 69 teeth of a spur gear are to be cut around the periphery of a cylindrical blank. Recommend a suitable indexing mechanism. (06 Marks)
- c. With a neat sketch, explain the working of an universal dividing head. (06 Marks)
- 6 a. Explain the centreless grinding process with a neat sketch. Also discuss the advantages and limitations of the same. (08 Marks)
- b. Write a note on : i) Dressing and truing of grinding wheels ; ii) Wheel balancing. (08 Marks)
- c. With an example, explain the specifications of a grinding wheel. (04 Marks)
- 7 a. Explain the following, with neat sketches : i) Honing ; ii) Lapping. (10 Marks)
- b. List the factors which affect the lapping process. Discuss the influence of these parameters on lapping. (10 Marks)
- 8 a. Explain the principle of Laser Beam Machining [LBM], with a neat sketch. (08 Marks)
- b. With a schematic diagram, explain the ultrasonic machining process [USM]. (08 Marks)
- c. Discuss the applications and limitations of non – conventional machining processes over conventional machining processes. (04 Marks)

* * * * *

Important Note : 1. On completing your answer, compulsorily draw diagonal cross lines on the remaining blank page.
 2. Any revealing of identification, appeal to evaluator and/or equations written e.g., $2+8=50$, will be treated as malpractice.