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Fourth Semester B.E. Degree Examination, June/July 2016
Manufacturing Process – II

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. With neat sketch, give nomenclature of a single-point-cutting-tool. (07 Marks)
- b. List various factors affecting tool life. Explain any two of them. (06 Marks)
- c. In an orthogonal cutting the following observations were made:
 (i) Feed = 0.25 mm/rev (ii) Chip thickness = 0.8 mm (iii) Depth of cut = 2 mm
 (iv) Length of chip-tool contact = 0.5 mm (v) Working rake angle = 0°
 (vi) Cutting force = 1800 N (vii) Axial thrust, $F_t = 900$ N
 Determine :
 - ❖ The mean angle of friction on tool face. (07 Marks)
 - ❖ The mean shear strength of the work material. (06 Marks)
 - ❖ The maximum frictional stress on tool face. (08 Marks)
- 2 a. Explain the three zones of heat generation in metal cutting. (06 Marks)
- b. Briefly explain the desirable properties and purposes of cutting fluids. (08 Marks)
- c. List the various methods of chip-tool interface temperature. Explain briefly tool work thermocouple method of measuring it. (06 Marks)
- 3 a. Differentiate between Capstan and Turret Lathe. (04 Marks)
- b. Explain with a neat sketch Crank and slotted link type of Quick return mechanism of a shaper. (08 Marks)
- c. Sketch planning machine and indicating major parts. (08 Marks)
- 4 a. Draw neat sketch of a radial drilling machine and indicating parts. (06 Marks)
- b. Briefly explain absolute co-ordinates system and incremental co-ordinate system used in CNC. (08 Marks)
- c. With simple sketches, explain the following processes: (i) Counter sinking (ii) Trepanning (iii) Reaming (06 Marks)

PART – B

- 5 a. Draw a neat sketch of horizontal milling machine and indicating parts. (08 Marks)
- b. What is indexing? Name different methods of indexing. Briefly explain compound indexing method. (08 Marks)
- c. Differentiate between up milling and down milling. (04 Marks)
- 6 a. Explain the factors to be considered for selection of grinding wheels. (06 Marks)
- b. Briefly explain external cylindrical centreless grinding with a neat sketch. Mention the advantages of same over centre-type grinding. (08 Marks)
- c. Explain the following grinding wheel parameters: (i) GRIT (ii) Grade (iii) Structure. (06 Marks)
- 7 a. Explain briefly the Honing process with a neat sketch. State its advantages and disadvantages. (10 Marks)
- b. Explain with a neat sketch the Lapping process. State its advantages and disadvantages. (10 Marks)
- 8 a. With a neat sketch, explain the electric discharge machining. (08 Marks)
- b. With a schematic diagram, explain the ultrasonic machining process. (08 Marks)
- c. Differentiate between non-conventional machining process and conventional machining processes. (04 Marks)

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Important Note : 1. On completing your answers, carefully draw diagonal cross lines on the remaining blank space. 2. Any revealing of identification, appear to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.