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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.  
     ❖ The mean shear strength of the work material.  
     ❖ The maximum frictional stress on tool face. (07 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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