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10ME/AU45

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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