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### Fourth Semester B.E. Degree Examination, June 2012

#### 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 sketches, explain clearly the different types of chips by enumerating the conditions under which each variety of chip will be formed. (09 Marks)
  - b. Mild steel bars of 50 mm diameter are to be turned over a length of 160 mm with a depth of cut of 1.5 mm, feed of 0.2 mm/rev at 230 rpm by HSS tool. If the tool life equation is given by,  $VT^{0.2}f^{0.3}d^{0.12} = 50$ , determine how many components may be turned before regrinding of the tool. (07 Marks)
  - c. Write an explanatory note on flank wear. (04 Marks)
- 2
  - a. List and explain the essential properties of cutting tool materials. (08 Marks)
  - b. List the various functions of a cutting fluid in metal cutting. (04 Marks)
  - c. State the various methods of measuring the tool tip temperature and hence explain any one of them with neat sketch. (08 Marks)
- 3
  - a. Distinguish clearly between shaping and planing. (04 Marks)
  - b. Explain clearly the tail stock offset method of taper turning in a lathe. (07 Marks)
  - c. With a neat sketch, explain clearly the construction and working of a shaper. (09 Marks)
- 4
  - a. With a neat diagram, explain briefly the construction and working principle of upright drilling machine. State its relative merits and demerits. (10 Marks)
  - b. Explain briefly with suitable sketches the various operations to be performed on a drilling machine. (10 Marks)

#### PART – B

- 5
  - a. With the aid of suitable sketches, explain clearly the concepts of up milling and down milling. (08 Marks)
  - b. With a neat sketch, explain briefly the working of a universal dividing head. (08 Marks)
  - c. Differentiate between simple indexing and compound indexing. (04 Marks)
- 6
  - a. With neat sketch, explain clearly the construction and working principle of a surface grinding machine. (10 Marks)
  - b. Explain the following:
    - i) Types of abrasives used in grinding wheels.
    - ii) Dressing and truing of grinding wheels. (10 Marks)
- 7
  - a. Distinguish clearly between push broach and pull broach. (04 Marks)
  - b. What is honing? With a neat sketch, explain clearly the vertical honing machine. (09 Marks)
  - c. Explain with a neat sketch, the process of lapping. (07 Marks)
- 8
  - a. With a neat sketch, explain clearly the principle of working and construction of a Abrasive Water Jet Machining (AWJM). State the process parameters. (10 Marks)
  - b. Explain briefly the principle of EDM, with a neat sketch. List the various factors affecting the MRR in EDM process and explain any one of them. (10 Marks)