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10ME/AU/TL45

Fourth Semester B.E. Degree Examination, December 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. Write short notes on the following:
i) Rake angles; ii) Orthogonal and oblique cutting; iii) Tool signature with example. **(16 Marks)**

b. During orthogonal machining with a rake angle of 10^0 and uncut thickness of 0.125mm. The average thickness of chip is 0.43mm. Evaluate cutting ratio and shear angle. **(04 Marks)**

2 a. What do you understand by i) 18 – 4 – 1 HSS; ii) 6 – 6 – 4 – 2 HSS. **(04 Marks)**

b. With neat sketch, explain various heat generation zones during metal cutting along with heat distribution curve. **(10 Marks)**

c. With the help of neat sketch, explain Tool-Work thermocouple technique to measure tool-tip temperature. **(06 Marks)**

3 a. With necessary sketches, explain various stages involved to produce hexagonal bolt using turret. **(08 Marks)**

b. Explain with neat sketch open and cross belt drive mechanism of a planer. **(08 Marks)**

c. A shaper makes 36 complete strokes/min and the stroke length is 30 cm. The shaper has a cutting stroke to return stroke ratio of 3:2. Determine the cutting speed in m/min. **(04 Marks)**

4 a. With a neat sketch, explain in detail the nomenclature of twist drill. **(08 Marks)**

b. Explain with neat sketch, the working principle of radial drilling machine. **(08 Marks)**

c. Give the advantages and disadvantages of CNC machines. **(04 Marks)**

PART – B

5 a. Explain following milling operations with relevant sketches:
i) Form milling; ii) Gang milling; iii) Straddle milling. **(10 Marks)**

b. Differentiate upmilling and down milling with sketches. **(05 Marks)**

c. With the help of crank mechanism explain simple indexing. **(05 Marks)**

6 a. Mention various bonding processes and explain vitrified and retinoid bonding process. **(08 Marks)**

b. Write short notes on the following:
i) Grade; ii) Marketing systems for grinding wheel; iii) Structure. **(12 Marks)**

7 a. With the help of neat sketch explain pull broach. **(10 Marks)**

b. Mention in detail the advantages of honing and lapping process along with the uses of the processes. **(10 Marks)**

8 a. Explain laser beam machining process with relevant sketches of formation of laser beam and energy level diagram. **(10 Marks)**

b. Explain in detail with respect to AJM element influence on AJM process. **(10 Marks)**

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