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10ME/AU45

Fourth Semester B.E. Degree Examination, Dec.2013/Jan.2014
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. Explain with a neat sketch the nomenclature of a single point cutting tool, highlighting the significance of different angles. **(08 Marks)**

b. With necessary sketches, explain the types of Toolwear. **(08 Marks)**

c. Briefly describe the various types of chips produced during metal cutting operations. **(04 Marks)**

2 a. What are the desirable properties or characteristics of an ideal cutting tool material? **(06 Marks)**

b. Briefly explain the desirable properties and purpose of cutting fluids. **(06 Marks)**

c. With a neat sketch, explain different heat affected zones during orthogonal cutting. **(08 Marks)**

3 a. Differentiate between turret lathe and capsten lathe. **(06 Marks)**

b. Explain with the help of a neat sketch, the Whitworth quick return mechanism of a shaper. **(08 Marks)**

c. Compare shaper and planer in terms of their operation, types of workpiece and applications. **(06 Marks)**

4 a. Draw a neat diagram of a radial drilling machine. Name and explain the parts and its principle of operation. **(07 Marks)**

b. Explain with sketches the following operations in a drilling machine:
(i) Reaming (ii) Boring (iii) Counter boring (iv) Trepanning. **(07 Marks)**

c. Describe twist drill nomenclature using sketches. **(06 Marks)**

PART – B

5 a. Differentiate between:
(i) Up milling and down milling ii) Simple indexing and compound indexing **(08 Marks)**

b. With a neat sketch, explain the working of an universal dividing head. **(06 Marks)**
Show the calculation for setting dividing head to mill 69 teeth (division) on a spur gear blank by compound indexing. Index plate with circles of holes patented by the Porous and Sharp Manufacturing Company are as follows:

Plate No. 1 – 15, 16, 17, 18, 19, 20
Plate No. 2 – 21, 23, 27, 29, 30, 33
Plate No. 3 – 37, 39, 41, 43, 47, 49 **(06 Marks)**

6 a. With respect to grinding process, differentiate between:
(i) Glazing and loading
(ii) Dressing and truing of wheels
(iii) Cylindrical grinding and centreless grinding. **(12 Marks)**

b. Explain the different factors to be considered in the selection of a grinding wheel. **(08 Marks)**

7 a. Sketch and explain the process of super finishing. **(06 Marks)**

b. What is Honing? Explain with sketch. **(06 Marks)**

c. List the operations and application of polishing and buffing. **(08 Marks)**

8 a. Explain briefly with a neat sketch the working principle of a electron beam machining (EBM) and what are its limitations. **(10 Marks)**

b. Briefly describe the principle of electro-discharge machining (EDM) process with a sketch and what are its advantages and disadvantages. **(10 Marks)**

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