CBCS SCHEME

USN 1 A Y 1 6 A U 0 5 2

17AU46

Fourth Semester B.E. Degree Examination, June/July 2019
Manufacturing Process – II

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Sketch the geometry of single point cutting tool. **(06 Marks)**

b. Explain the different types of chips produced in metal cutting operation. **(10 Marks)**

c. During metal cutting operation, it is observed that chip thickness is 0.4mm and uncut chip thinness is 0.16mm, rake angle of the tool is 10°. Determine the shear plane angle and magnitude of shear strain. **(04 Marks)**

OR

2 a. What are the factors affecting heat generation in metal cutting? **(05 Marks)**

b. Write desirable properties of i) cutting tool materials ii) cutting fluids. **(10 Marks)**

c. A cutting tool using rough turning gave a tool life of 1 hour at a cutting speed of 30m/min, what will be the life of the tool, when it is used at the some cutting speed for finishing. Take n = 0.125 for rough cutting, n = 0.1 for finish cut. **(05 Marks)**

Module-2

3 a. When neat sketch, explain the principle parts of Turret lathe. **(10 Marks)**

b. Give the comparison between Capston and turret lathe. **(06 Marks)**

c. Sketch and explain the any two operations performed on lathe. **(04 Marks)**

OR

4 a. Explain the crank and slotted link quick return mechanism of a shaper with a sketch. **(10 Marks)**

b. Give the comparison of shaper and planner machine. **(05 Marks)**

c. A mild steel plate of dimension 400 × 800 × 30mm is to be shaped along its wider face the ratio of return time to cutting time is 2:3 and the feed per cycle is 2mm. tool approach and the over travel respectively are 50mm each. Calculate the machining time required for machining the given plate with HSS tool. Assume the average cutting speed for MS material = 24 m/min. **(05 Marks)**

Module-3

5 a. With a neat sketch explain construction and operation of horizontal spindle column and knee milling machine. **(10 Marks)**

b. Distinguish between up milling and down milling with a sketch. **(10 Marks)**

OR

6 a. Sketch and explain the construction and operation of centre type cylindrical grinding machine. **(10 Marks)**

b. Write a note on : i) Type of abrasive ii) grain size of abrasive. **(06 Marks)**

c. Write the factors to be considered in the selection of grinding wheel. **(04 Marks)**

Module-4

7 a. Sketch and explain the construction and operation of Radial drilling machine. **(10 Marks)**

b. Sketch and explain the following operations **(10 Marks)**
i) Boring ii) Tapping iii) Counter boring iv) Counter sinking.

OR

8 a. What is broaching? Explain the different types of broaching methods. **(10 Marks)**

b. With a neat sketch explain the principle of lapping and honing process. **(10 Marks)**

Module-5

9 a. Sketch and explain the working of ultrasonic (USM) machining process and give its applications. **(10 Marks)**

b. Sketch and explain the working of Laser beam machining with its advantages. **(10 Marks)**

OR

10 a. Sketch and explain the Abrasive jet machining and give its applications. **(10 Marks)**

b. Sketch and explain the electron beam machining process working and give its advantages. **(10 Marks)**

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