

# CBCS Scheme

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15AU46

Fourth Semester B.E. Degree Examination, June/July 2017

## Manufacturing Process – II

Time: 3 hrs.

Max. Marks: 80

*Note: Answer FIVE full questions, choosing one full question from each module.*

### Module-1

- 1 a. Explain the nomenclature of a single point cutting tool with a neat sketch. (04 Marks)  
b. With neat sketches, explain the different types of chips produced during metal cutting. (06 Marks)  
c. Draw Merchant's circle diagram and derive the Ernst-Merchant's solution,  $2\phi + \beta - \alpha = \frac{\pi}{2}$  when  $\phi$  = shear plane angle,  $\beta$  = friction angle,  $\alpha$  = rake angle. (06 Marks)

OR

- 2 a. Explain the properties that are to be considered during the selection of a cutting tool material. (06 Marks)  
b. Briefly explain the different types of cutting fluids. (05 Marks)  
c. With a neat sketch, explain the zones of heat generation in metal cutting. (05 Marks)

### Module-2

- 3 a. With a neat sketch, explain constructional features of a turret lathe. (08 Marks)  
b. With neat sketches, explain any four operations performed on lathe. (08 Marks)

OR

- 4 a. Explain the construction and working principle of a shaping machine with a neat sketch. (08 Marks)  
b. Explain the construction and working of a planing machine with a neat sketch. (08 Marks)

### Module-3

- 5 a. Explain horizontal milling machine with a neat sketch. (10 Marks)  
b. Explain up milling and down milling with neat sketches. (06 Marks)

OR

- 6 a. Write a note on grade and structure of grinding wheel. (04 Marks)  
b. With a neat sketch, explain the constructional features of a centreless grinding machine. (08 Marks)  
c. Explain the factors to be considered while selecting a grinding wheel. (04 Marks)

### Module-4

- 7 a. Classify drilling machines. Explain the nomenclature of a drill bit with a neat sketch. (06 Marks)  
b. With a neat sketch, explain the constructional features of a continuous surface broaching machine. (10 Marks)

OR

- 8 a. With a neat sketch, explain the principle of lapping. (08 Marks)  
b. With a neat sketch, explain the principle of honing. (08 Marks)

**Module-5**

- 9 a. Explain the need for non-traditional machining. (06 Marks)  
b. Explain laser beam machining with a neat sketch. Mention its applications. (10 Marks)

OR

- 10 a. With a neat sketch, explain the working principle of ultrasonic machining process. Mention its advantages. (08 Marks)  
b. With a neat sketch, explain the working principle of electron beam machining process. State its advantages. (08 Marks)

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