

**B.Tech. MECHANICAL ENGINEERING  
(COMPUTER INTEGRATED  
MANUFACTURING)**

00652

**Term-End Examination**

**June, 2019**

**BME-010 : TOOL ENGINEERING AND MANAGEMENT**

*Time : 3 hours*

*Maximum Marks : 70*

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*Note : Answer any **seven** questions. All questions carry equal marks.*

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1. What are the basic elements of tool geometry ?  
With the help of diagram, illustrate tool signature of a cutting tool. 3+7
  
2. Explain in detail, the working of turning and grinding fixtures. 10
  
3. (a) What are the various types of hand tools used in foundry ?  
  
(b) Write the principal characteristics and applications of any two cutting tool materials. 4+6

4. (a) What is the purpose of a 'stripper' ?  
Describe any one of the strippers in brief.
- (b) What is the purpose of a die and how are the dies classified ? *5+5=10*
5. (a) Draw neat sketches of any two types of forming tools.
- (b) Why are cutting fluids used ? Discuss the properties of cutting fluids used in metal cutting. *5+5=10*
6. (a) What are the limitations of conventional CNC machine ? Explain in detail.
- (b) Describe the types of cross-sections used for machine tool beds and columns. *5+5=10*
7. Describe the flat form tool. Derive the expression for the depth of cut for flat form tool. *2+8=10*
8. (a) A 200 mm diameter cutting tool having 10 teeth, cuts steel at 30 m/min. The depth of cut is taken as 4 mm and the table feed rate is 180 mm/min. Find the length of the chip in up-milling operation.
- (b) With the help of neat sketch, explain the principle of Indexing Jig. *5+5=10*

9. Write short notes on any *four* of the following :  $4 \times 2 \frac{1}{2} = 10$

- (a) Tool Condition Monitoring
  - (b) Safety Norms in the Industry
  - (c) Web-based Virtual Machine Tool (WVMT)
  - (d) Foundry Tools
  - (e) Merchant's Force Circle
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