

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

00393

Term-End Examination

December, 2016

BME-010 : TOOL ENGINEERING AND MANAGEMENT

Time : 3 hours

Maximum Marks : 70

Note : Answer any five questions. Assume any suitable data, if missing. Use of calculator is allowed.

1. (a) Discuss the different types of single point tools with figures. 7
- (b) Name any seven important cutting tool materials. Describe their distinguishing features. 7
2. (a) Draw Merchant's force circle diagram and derive expressions to show relationships among the different forces acting on the cutting tool and different parameters involved in metal cutting. 10
- (b) How is a chip formed in metal cutting ? Discuss. 4

3. (a) What essential factors will you consider while designing a jig or a fixture ? 7
- (b) How are different types of fixtures classified ? Explain any one of them with figure. 7
4. (a) Explain the method of mounting and supporting slender punches with figure. 7
- (b) Discuss the difference between progressive and combination die with figure. 7
5. (a) Give a systematic procedure for designing a circular form tool using graphical method. 7
- (b) Discuss various steps involved in laying out a center hole using center head. 7
6. (a) What is the importance of guideways in machine tool design ? Describe the main types of slideways used in machine tools. 7
- (b) What are the functions of a machine tool structure ? Show the types of cross-sections used for machine tool beds and columns with the help of neat sketches. 7

7. Write short notes on any *two* of the following : **2×7=14**

- (a) CNC (Computer Numerical Control)
 - (b) WVMT (Web-based Virtual Machine Tool)
 - (c) Cutting Tool Properties
 - (d) Foundry Tools
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