

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

Term-End Examination

00014

June, 2017

BME-010 : TOOL ENGINEERING AND MANAGEMENT

Time : 3 hours

Maximum Marks : 70

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

1. (a) Show by different views the general shape of a single-point cutting tool. 7
- (b) Discuss the effects of the tool material properties on metal cutting. 7
2. (a) What is the effect of the following factors on shear plane angle ? 6
 - (i) Rake angle
 - (ii) Cutting speed
 - (iii) Feed
 - (iv) Depth of cut

- (b) In orthogonal turning of a plain carbon steel bar of 60 mm diameter on a lathe, a feed of 0.8 mm was used. A chip of 1.4 mm thickness was removed at a rotational speed of 80 r.p.m. of work. Calculate the chip thickness ratio, the chip reduction ratio and the total length of the chip removed in one minute. + 1000 8
3. (a) What are the main advantages of using Jigs and Fixtures in mass production ? Discuss. 7
- (b) Explain the 'Degrees of freedom of a free body' with special reference to Jigs and Fixtures. 7
4. (a) Explain in brief the functions of a stripper, knockout and pilot in a press tool. 7
- (b) Make a neat sketch of a die set and describe its various details and accessories. 7
5. (a) Give a systematic procedure for designing a flat form tool with suitable example. 7
- (b) Describe the functions of various types of molding machines and their applications. 7
6. (a) Discuss the salient features of spindles used in machine tools with figure. 7
- (b) Differentiate between bidirectional information flow and unidirectional information flow. 7

7. Write short notes on any *two* of the following :

$2 \times 7 = 14$

- (a) Safety Norms in Industry
 - (b) Computer Aided Process Planning
 - (c) Basic Layout Operations
 - (d) Working of Milling Fixture
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