

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

**BTCLEVI/BTMEVI/BTELVI/BTCSVI/BTECVI**

**Term-End Examination**

**December, 2018**

00363

**BME-003 : MANUFACTURING TECHNOLOGY**

*Time : 3 hours*

*Maximum Marks : 70*

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*Note : Attempt any **seven** questions. All questions carry equal marks. Use of calculator is allowed. Assume any suitable data, if found missing.*

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1. (a) Name the important furnaces used in foundries with their capabilities and applications. 5
  
- (b) What are the basic ingredients of green sand and dry sand ? Give the composition of each. 5

2. With the help of neat sketches describe investment casting process. Give its advantages, limitations and applications. 10
3. (a) What is the difference between modulus of elasticity and modulus of rigidity? 5
- (b) Why does cold shut occur in forging? How can one overcome this forging defect? 5
4. (a) Describe the rolling process. Give its applications. 5
- (b) Discuss at least five common defects in a rolled product. 5
5. (a) Discuss the mode of deformation encountered in the process of deep drawing of a cup. 5
- (b) State the difference between orthogonal and oblique cutting. 5
6. (a) Sketch a single-point cutting tool showing its different parts. 5
- (b) What are the three optimization criteria generally used in metal cutting? 5

7. A medium carbon steel workpiece (w/p) having 100 mm width and 300 mm length is face milled by 50 mm radius, milling cutter at a 25 m/min peripheral speed with 5 mm as depth of cut. The cutter has total 10 teeth. The table feed is equal to 1.25 mm/sec. Take specific cutting pressure as 430 kg/cm<sup>2</sup>. Calculate 10
- (i) maximum chip thickness
  - (ii) mean cross-sectional area of chip
  - (iii) power required
8. (a) How will you distinguish between the manual, semi-automatic and automatic welding processes ? 5
- (b) Describe the principle of electric arc welding. 5
9. (a) Describe Tungsten Inert Gas welding. Give its process capabilities and applications. 5
- (b) What is the purpose of preheat in various welding applications ? 5

**10. Write short notes on any *two* of the following :** **2×5=10**

- (a) Core
  - (b) Press Forging
  - (c) Economics of Machining
  - (d) Classification of Welding Processes
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