

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

00513 Term-End Examination

December, 2016

**BME-012 : MANUFACTURING SYSTEMS,
INTEGRATION AND CONTROL**

Time : 3 hours

Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks.

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1. (a) Explain the terms Manufacturing Lead Time and Work-in-Process. How will you evaluate these ? 8
(b) Discuss the control hierarchy in manufacturing system integration architecture. 6
 2. (a) What are the basic elements of an automated manufacturing system ? Explain the role of material handling system. 7
(b) Why is automation necessary in the modern manufacturing systems ? Explain the activities which can be automated in a manufacturing system. 7

3. (a) What do you mean by Rapid Response Manufacturing and how can it be achieved ? 7
- (b) What do you mean by agent based manufacturing systems ? Discuss the issues involved in their development. 7
4. (a) Differentiate between Flexible Manufacturing System and Flexible Manufacturing Cell. 3
- (b) Explain the role of Automated Guided Vehicle (AGV) system in manufacturing systems. 6
- (c) What is Decision Tree ? Explain with some examples. 5
5. (a) What is Dynamic Machine Routing ? Explain in brief. 5
- (b) Explain the part contact states and deadlock states in computer controlled scheduling. 5
- (c) How do priority rules play an important role in production scheduling ? Name a few simple priority rules. 4

6. (a) Explain the role of control charts in statistical quality control. How does X-Chart differ from R-Chart ? 6
- (b) Discuss the role of Coordinate Measuring Machine (CMM) in inspection. Briefly explain its main components. 8
7. (a) What is Six-Sigma ? Explain the different steps of Six-Sigma. 6
- (b) What do you mean by deadlock avoidance policy ? Explain the different approaches used for deadlock avoidance. 8
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