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BME-005

B. TECH. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

Term-End Examination

June, 2019

BME-005 : COMPUTER INTEGRATED MANUFACTURING

Time : 3 Hours *Maximum Marks : 70*

***Note** : Attempt any **seven** questions. All questions carry equal marks. Marks for sub-divisions of questions are as indicated. Use of scientific calculator is allowed.*

1. (a) Discuss the scope of CIM in context of business, production and design. 5

   (b) Enlist the potential benefits of CIM. 5

2. (a) Define inspection. Discuss the various steps involved in inspection procedure. 5

(b) Differentiate between online/in-process and online/post-process inspection methods. 5

3. (a) What is an Industrial Robot ? Explain any ***two*** robotic applications in the industry. 5

(b) How are industrial robots classified on the basis of physical configuration and control systems ? 5

4. (a) What are the essential elements of FMS ? What are the benefits of FMS ? 5

(b) What are the various simulation packages used in modeling flexible manufacturing system ? Explain. 5

5. (a) Why is Master Production Schedule (MPS) important ? What is the significance of a Bill of Materials (BOM) ? 5

(b) What are the different components of a LAN ? Explain the working of a modem. 5

6. (a) What is database management system ? Describe the features of distributed database management system. 5

(b) What are the different social and economic factors which promotes the development of automated factory ? 5

7. (a) Describe all the manufacturing control functions. 5

(b) Describe the steps through which electronic data transfer takes place from manufacturer to supplier. 5

8. What is an automated guided vehicle system ? Briefly describe any ***two*** types of AGV systems used in CIM environment. 10

9. (a) Define flexibility in terms of manufacturing systems. 5

(b) Describe the following : 5

(i) Machine Flexibility

(ii) Routing Flexibility

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

(a) Concept of CIM wheel

(b) CAD/CAM

(c) Coordinate Measuring Machine (CMM)

(d) Distributed Numerical Control (DNC)

(e) Manufacturing Resource Planning (MRP-II)

(f) Material Handling Systems