

**DIPLOMA IN MECHANICAL ENGINEERING
(DME)**

Term-End Examination

00462

December, 2017

**BME-055 : COMPUTER INTEGRATED
MANUFACTURING**

Time : 2 hours

Maximum Marks : 70

Note : Attempt five questions in all. Question no. 1 is compulsory. All questions carry equal marks. Use of scientific calculator is permitted.

1. Choose the correct answer from the given four alternatives. $7 \times 2 = 14$
- (a) A robot is basically a/an
 - (i) Machining device
 - (ii) Inspection device
 - (iii) Material handler
 - (iv) All of the above

 - (b) The function(s) of CAD is/are
 - (i) Geometric modelling
 - (ii) Drafting
 - (iii) Documentation
 - (iv) All of the above

- (c) Central 'brain' of computer aided design is
- (i) Processor
 - (ii) Hardware
 - (iii) CPU
 - (iv) Logic
- (d) Numerical control can be applied to
- (i) Milling machines
 - (ii) Drilling and boring machines
 - (iii) Grinding and sawing machines
 - (iv) All of the above
- (e) APT is used in
- (i) teaching of the beginners
 - (ii) CAM for NC machine tools
 - (iii) inventory management
 - (iv) None of the above
- (f) Numerical control machines are manufactured in India by
- (i) Kirloskar
 - (ii) BHEL
 - (iii) HAL
 - (iv) HMT

- (g) The physical arrangement of an equipment in a network is called
- (i) Logic
 - (ii) Pairing
 - (iii) Queuing
 - (iv) Topology
2. (a) Explain Computer Integrated Manufacturing. Discuss the applications and benefits of CIM.
- (b) Discuss in brief the importance of integrating the manufacturing enterprise in today's environment. 7+7
3. (a) Explain an Automated Storage/Retrieval System (AS/RS). Also describe the basic sets of operation performed by the automated storage and mechanised system.
- (b) Define Flexibility. Explain machine flexibility and production flexibility with the help of suitable examples. 7+7
4. (a) What do you understand by Material Requirement Planning (MRP)? Explain the master production schedule with the help of suitable example.
- (b) Explain the application of Robot in an industry with the help of suitable examples. 7+7

5. (a) What is Feedback Process Control ? Differentiate between on-line/in-process and on-line/post-process inspection methods.
- (b) What do you mean by Machine loading ? What are the main objectives for machine loading ? 7+7
6. (a) What do you understand by Inspection Accuracy ? Describe Type-I and Type-II errors with the help of suitable examples.
- (b) What are the different types of AGVs ? Describe any one in detail. 7+7
7. Processing times (including set-up times) and due dates for five jobs waiting to be processed at a work centre are given in the following table :

Job	Processing Time (Days)	Due Date (Days)
A	12	15
B	6	24
C	14	20
D	3	8
E	7	6

Determine (a) the sequence of jobs, (b) the average job lateness, and (c) the average flow time for Shortest Processing Time (SPT) rule. 14