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BME-055

**DIPLOMA IN MECHANICAL
ENGINEERING (DME)**

Term-End Examination

December, 2019

**BME-055 : COMPUTER INTEGRATED
MANUFACTURING**

Time : 2 Hours

Maximum Marks : 70

Note : Question number 1 is compulsory. Attempt

four more questions from Question NOS. 2 to

7. All questions carry equal marks.

1. Select the correct answer from the given four alternatives for the following objective type questions : $7 \times 2 = 14$

(a) In a basic NC machine programmed instructions are stored in :

(i) punched tape

- (ii) graphic terminal
 - (iii) head box
 - (iv) None of the above
- (b) CAD/CAM is the inter-relationship between :
- (i) marketing and design
 - (ii) manufacturing and marketing
 - (iii) engineering and marketing
 - (iv) engineering and manufacturing
- (c) The functions of CAM are :
- (i) numerical control
 - (ii) robotics
 - (iii) process planning
 - (iv) All of the above
- (d) Computer Aided Engineering (CAE) and Computer Aided Manufacturing (CAM) are linked through :
- (i) a common database and communication systems

- (ii) NC tape programming and automated design
 - (iii) Assembly automation and tool production
 - (iv) Parts production and testing
- (e) Ergonomics refer to :
- (i) The human aspect of the environment around the work station as well as the work station itself.
 - (ii) The level of involvement the operator has with the work station
 - (iii) The technology involved in the work station itself
 - (iv) The cost relationship of the work station *versus* productivity

- (f) The integration of CAD and CAM is :
- (i) CIM
 - (ii) CAE
 - (iii) CAPP
 - (iv) None of the above
- (g) Handshaking refers to :
- (i) exchange of predetermined signals establishing contact between two data sets
 - (ii) Z-plane on which an image is displayed
 - (iii) matching colours on a colour terminal
 - (iv) display refresh of all raster lines
2. (a) Discuss the scope of CIM in context of production and design.

- (b) What are the objectives for installing an automated storage system in a factory ? 7
3. (a) Describe the following in detail : 7
- (i) Machine flexibility
 - (ii) Mix flexibility
- (b) What do you understand by flexible manufacturing system ? Explain, how it enhances the productivity. 7
4. (a) Explain Computer Integrated Manufacturing. Discuss the application and benefits of CIM. 7
- (b) Discuss an automated inspection system. Why inspection has become an essential part of any manufacturing system ? 7

5. (a) What is scheduling ? How is scheduling different from sequencing ? Explain with the help of suitable example. 7
- (b) State the reasons for the commercial and technological importance of industrial robots. 7
6. (a) Explain, how Robots are hazardous in a manufacturing industry. 7
- (b) Discuss Just in Time (JIT) with the help of suitable examples. 7
7. (a) Explain the Coordinate Measuring Machine (CMM) with the help of "Probe". 7
- (b) Eight jobs are to be scheduled on two identical processors. The time at which these jobs become available and their

required processing times are given in the following table :

Job	Available (hours)	Processing Time (hours)
A	0	6
B	0	2
C	0	3
D	2	5
E	3	4
F	5	1
G	7	3
H	9	6

Assume that jobs can be scheduled instantly.

What is the earliest time at which processing of all jobs can be completed ? 7