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Term End Examination 2024-2025
Programme – Dip.ME-2022
Course Name – Computer Integrated Manufacturing
Course Code - DMEPE601B
(Semester VI)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Select the basic components of CIM.
   a) CAD b) CAM
   c) Robotics d) All of the Mentioned

(ii) Recall the full form of CIM.
   a) Computer Integrated Machinery b) Computer Integrated Manufacturing
   c) Centralized Industrial Manufacturing d) Computerized Industrial Management

(iii) Identify which of the following is a hardware component of a CAD system.
   a) Monitor b) CAD software
   c) Operating system d) Printer driver

(iv) Identify computer-aided tools used in robot programming.
   a) CAM software b) Teach pendant
   c) ERP system d) MS Excel

(v) Identify which component is essential for an FMS.
   a) Manual workstations b) Programmable CNC machines
   c) Typewriters d) Paper-based scheduling systems

(vi) Select which of the following is a primary function of business.
   a) Manufacturing only b) Marketing, finance, and operations
   c) Playing video games d) Writing novels

(vii) Choose how does Computer-Integrated Manufacturing (CIM) improve production efficiency.
   a) By integrating automation, data, and processes b) By increasing human labor requirements
   c) By reducing the use of computer technology d) By eliminating the need for product design

(viii) Choose how can a Distributed Communication System optimize supply chain operations.

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a) By enabling real-time coordination among suppliers and manufacturers
b) By increasing reliance on paper-based records
c) By delaying communication between departments
d) By preventing remote access to manufacturing data

(ix) Choose the impact of sustainability practices on future manufacturing.

a) They reduce environmental impact and improve energy efficiency
b) They increase carbon emissions
c) They reduce the use of renewable energy sources
d) They eliminate the need for waste reduction

(x) Identify the key advantage of Variant Process Planning in CAPP.

a) It allows modification of standard process plans for similar parts
b) It restricts flexibility in process selection
c) It eliminates automation from process planning
d) It increases lead time for production

(xi) Choose which of the following is a major benefit of Generative Process Planning.

a) It increases dependency on manual decision-making
b) It prevents the use of material selection databases
c) It does not support integration with CAD systems
d) It automatically generates new process plans based on design parameters

(xii) Choose how does MRP help in reducing waste and improving efficiency in manufacturing.

a) By increasing unnecessary material storage
b) By eliminating the need for production scheduling
c) By delaying production planning
d) By minimizing excess inventory and optimizing material flow

(xiii) Choose how Flexible Manufacturing helps in mass customization.

a) By enabling quick changes in production to meet customer needs
b) By restricting customization in manufacturing
c) By reducing automation capabilities
d) By limiting the number of product variations

(xiv) Choose the benefits and features of cloud office automation solutions.

a) No internet connection is required
b) Improved collaboration and accessibility
c) Requires expensive hardware
d) No security risks involved

(xv) Identify the primary purpose of the Finite Element Method (FEM).

a) To provide an exact solution to all engineering problems
b) To approximate complex engineering problems into simpler numerical models
c) To replace experimental testing entirely
d) To solve only structural analysis problems

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain the role of CAD in CIM. (3)
3. Predict the technological trends in smart factories. (3)
4. Explain the role of robotics in a CIM system. (3)
5. Explain how office automation improves workplace efficiency. (3)
6. Compare different database structures for manufacturing applications. (3)

OR

Analyze the socio-economic impact of automation. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

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7. Explain how Artificial Intelligence (AI) is revolutionizing Computer Integrated Manufacturing (CIM). (5)
8. Explain the benefits of Cloud Computing in manufacturing industries. (5)
9. Analyze how Computer-Aided Quality Control (CAQC) improves manufacturing processes and product quality. (5)
10. Illustrate the effectiveness of AI in business forecasting. (5)
11. Evaluate how the Finite Element Method (FEM) contributes to engineering analysis and design evaluation in modern product development. (5)
12. Analyze the role of Group Technology (GT) Centers in manufacturing industries. (5)

OR

Compare and contrast different robot programming methods used in industrial automation. (5)

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