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Total Number of Pages : 02

Course: B.Tech  
Sub\_Code: RPR6D001

6<sup>th</sup> Semester Regular/ Back Examination: 2022-23  
SUBJECT: Computer Integrated Manufacturing and FMS  
BRANCH(S): MANUTECH, MMEAM, MECH, PE

Time : 3 Hour

Max Marks : 100

Q.Code : M302

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.

The figures in the right hand margin indicate marks.

**Part-I**

Q1 Answer the following questions:

(2 x 10)

- Define automation. State the elements of an automated system.
- What is CIM? Write its application.
- Define the terms: (i) production rate, (ii) plant capacity.
- How CAPP model facilitates in implementation of CIM?
- What is cost-benefit analysis?
- Give the anatomy of an articulated robot.
- Differentiate between sensors and actuators.
- Write the difference between CNC and DNC.
- Differentiate between flexible and fixed automation.
- What are the benefits of Group Technology?

**Part-II**

Q2 Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve) (6 x 8)

- Discuss automation principles and automation strategies.
- Explain various types of production function in manufacturing.
- Explain with a block diagram the implementation of a CAD process on a CAD/CAM system.
- Explain role of CAPP in Integration of CAD/CAM with a tree chart.
- With the help of a flow chart show the steps in Retrieval type CAPP.
- Explain the implementation of Concurrent Engineering in product development with the help of an example.
- Discuss two types of sensors and actuators related to industrial robots.
- Illustrate the automated storage and retrieval systems used in industrial robotics.
- Explain the part classification and coding required in Group Technology.
- Describe FMS layout configurations. How do you select material handling equipment for them?
- What are the objectives of computer aided quality control? How do you integrate computer aided quality control with CAD/CAM?
- Prepare a plan of action to implement CIM in a specific industry.

**Part-III**

**Only Long Answer Type Questions (Answer Any Two out of Four)**

- Q3 What is production flow analysis? Discuss its steps in detail with a suitable example. (16)
- Q4 Enumerate different methods of robot programming stating their advantages and limitations. (16)
- Q5 Explain FMS highlighting its components, planning and implementation. Discuss the benefits and application of FMS. (16)
- Q6 Write notes on: (16)
- (a) Programmable logic controller (PLC)
  - (b) Generative method of CAPP