



**School of Engineering**

**Mid - Term Examinations - November 2024**

**Semester:** VII

**Date:** 7-11-2024

**Course Code:** MEC3034

**Time:** 09:30am – 11:00am

**Course Name:** Computer Integrated manufacturing

**Max Marks:** 50

**Program:** B.Tech

**Weightage:** 25%

**Instructions:**

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

**Part A**

**Answer ALL the Questions. Each question carries 2marks.**

**2Mx5Q=10M**

- |   |  |         |    |     |
|---|--|---------|----|-----|
| 1 | Define Computer integrated manufacturing(CIM)                                | 2 Marks | L1 | CO1 |
| 2 | What are the benefits of implementing an CIM in any manufacturing companies. | 2 Marks | L1 | CO1 |
| 3 | List out the reason for implementing automation in manufacturing industries? | 2 Marks | L1 | CO1 |
| 4 | What are encoders?   | 2 Marks | L1 | CO2 |
| 5 | What are the application of CNC machines                                     | 2 Marks | L1 | CO2 |

**Part B**

**Answer ALL Questions. Each question carries 10 marks.**

**4QX10M=40M**

- |    |  |         |    |     |
|----|--|---------|----|-----|
| 6a | A production machine operates 90 hr/wk (two shifts,5 days) at full capacity. Its production rate is 26 units/hr. During a certain week, the machine produced 1100 parts and was idle the remaining time (a) Determine the production capacity of machine (b) What was the utilization of the machine during the week under consideration | 5 Marks | L3 | CO1 |
| 6b | Computer integrated manufacturing system uses different computer techniques to manufacture a product. List out the different techniques which will aid in producing the products   | 5 Marks | L2 | CO1 |

**Or**

- 7**      **7a**      Different automation system are used in manufacturing sector to suit the production demand. Discuss how Fixed automation differ from the programmable automation      **5 Marks**      **L2**      **CO1**
- 7b**      List out the devices and equipment required for implementing CIM in any organization      **5 Marks**      **L2**      **CO1**
- 8**      For successful implementation of CIM in any organizations, every element has its own roles and responsibilities". Explain any five elements of computer aided manufacturing system that are used in CIM implementation      **10Marks**      **L2**      **CO1**

**Or**

- 9**      Computer aided techniques were used in CIM will have greater impact on production and quality of products. Explain in brief the following techniques
- (a) Computer Aided manufacturing (CAM)
- (b) Computer aided quality control(CAQ)
- ( C) Production Planning & Control (PPC)
- 10**      **10a**      Differentiate between Numerical Control (NC) & Computer Numerical Control (CNC) machine      **5 Marks**      **L2**      **CO2**
- 10b**      With simple diagram explain rotary transducer used to measure angular rotation      **5Marks**      **L2**      **CO2**

**Or**

- 11**      With the block diagram explain the components of CNC machine      **10Marks**      **L2**      **CO2**
- 12**      Explain the working principle of AC servo motor with its advantages and limitations      **10Marks**      **L2**      **CO2**

**Or**

- 13**      Describe the open and closed loop control system used in CNC machine      **10Marks**      **L2**      **CO2**