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**PRESIDENCY UNIVERSITY**

**Bengaluru**

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| **End - Term Examinations – JANUARY-2025** |
| **Date:** 11 – 01- 2025 **Time:** 09:30 am – 12:30 pm |

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| --- | --- | --- |
| **School:** SOE | **Program:** B. Tech – Mechanical Engineering | |
| **Course Code:** MEC3034 | **Course Name:** Computer Integrated Manufacturing | |
| **Semester**: VII | **Max Marks**: 100 | **Weightage**: 50% |

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| --- | --- | --- | --- | --- | --- |
| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** |
| **Marks** | **24** | **14** | **14** | **24** | **24** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Answer ALL the Questions. Each question carries 2marks. 2Mx10Q=20M** | | | | |
| **1** | Define computer integrated manufacturing (CIM). | **2 Marks** | **L1** | **CO1** |
| **2** | What is utilization in CIM? | **2 Marks** | **L1** | **CO1** |
| **3** | What are the limitations of CNC machine? | **2 Marks** | **L1** | **CO2** |
| **4** | What are the advantages of servo motor? | **2 Marks** | **L1** | **CO2** |
| **5** | What are the types of tool magazine? | **2 Marks** | **L1** | **CO3** |
| **6** | List out the work holding devices used in machines. | **2 Marks** | **L1** | **CO3** |
| **7** | What are the benefits of production planning & control? | **2 Marks** | **L1** | **CO4** |
| **8** | What is material planning in production planning & control? | **2 Marks** | **L1** | **CO4** |
| **9** | What is advanced manufacturing planning? | **2 Marks** | **L1** | **CO5** |
| **10** | Give some examples of generative CAPP. | **2 Marks** | **L1** | **CO5** |

**Part B**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Answer ALL Questions. Each question carries 20 marks. 4QX20M=80M** | | | | | |
| **11** | **11a** | Explain any four elements of computer integrated manufacturing system that play important role in implementation. | **10 Marks** | **L2** | **CO1** |
| **11b** | A product machine operates 96hr/week at full capacity to production rate is 24 units/hr. During a certain week, the machine produced 1200 parts and was idle in the remaining time.   1. Determine the production capacity of the machine 2. What was the utilization of the machine during the week? | **5 Marks** | **L3** | **CO1** |
|  | **11C** | What are the typical features of flexible automation. | **5 Marks** | **L2** | **CO1** |
| **Or** | | | | | |
| **12** | **12a** | What are the devices and equipment required for CIM? | **5 Marks** | **L2** | **CO1** |
| **12b** | What are the main reasons for implementing automation. | **5 Marks** | **L2** | **CO1** |
| **12c** | Write a short note on a) Computer Aided manufacturing (CAM) b)Computer Aided Quality assurance (CAQ) c) Computer Aided Engineering (CAE) | **10 Marks** | **L2** | **CO1** |
|  |  |  |  |  |  |
| **13** | **13a** | With simple sketch explain the steeper motor working principle. | **10 Marks** | **L2** | **CO2** |
| **13b** | i) Differentiate between open and closed loop in CNC machines.  ii) Write a short note on chain type tool magazine. | **10 Marks** | **L2** | **CO3** |
| **Or** | | | | | |
| **14** | **14a** | Explain the working principle of AC servo motor with its applications. | **10 Marks** | **L2** | **CO2** |
| **14b** | Explain the 1800 Automatic tool changer with simple sketch. | **10 Marks** | **L2** | **CO3** |
|  |  |  |  |  |  |
| **15** | **15a** | Process planning and control will plan the future required product, raw material and scheduling of machines. Explain the techniques or elements of production planning. | **10 Marks** | **L2** | **CO4** |
| **15b** | Write a short note on a) magnetic strip & b) Radio Frequency Identification RFID. | **10 Marks** | **L2** | **CO4** |
| **Or** | | | | | |
| **16** | **16a** | What are the objectives of production planning & control and its advantages. | **10 Marks** | **L2** | **CO4** |
| **16b** | Explain the working of Adoptive Control (AC) System used to produce components. | **10 Marks** | **L2** | **CO4** |
|  |  |  |  |  |  |
| **17** | **17a** | In computer aided process plan (CAPP) approach every time new process plan will be generated with the input data. Describe how this type of approach system develop effective new process planning with simple flow diagram. | **10 Marks** | **L2** | **CO5** |
| **17b** | With the help of flow diagram explain the process plan activities for developing a products | **10 Marks** | **L2** | **CO5** |
| **Or** | | | | | |
| **18** | **18a** | Advanced manufacturing planning attempts to forecast the new products that will be introduced in the next 2 to 10 years. Explain the Advanced manufacturing planning concept with neat flow diagram. | **10 Marks** | **L2** | **CO5** |
| **18b** | Describe the concept of concurrent engineering with flow diagram with its advantages. | **10 Marks** | **L2** | **CO5** |