Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **18ME3038** | **Duration :** | **3hrs** |
| **Sub. Name :** | **FLEXIBLE MANUFACTURING SYSTEM** | **Max. Marks :** | **100** |

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| **Q. No.** | **Sub Div.** | **Questions** | **Course Outcome** | **Marks** |
| **ANSWER ANY FIVE QUESTIONS (5 x 16 = 80 Marks)** | | | | |
| 1. | a. | Elaborate on the various criteria to be considered for flexibility in a manufacturing system. | CO1 | 8 |
| b. | Define manufacturing cell. Give classifications of it. | CO1 | 8 |
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| 2. | a. | Enumerate the process planning and control on the shop floor (Machine shop). | CO1 | 8 |
| b. | Compare Traditional stand alone NC machine tool with Integrated multi machine cell. | CO2 | 8 |
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| 3. | a | Explain the basic component and benefits of AS/RS in FMS. | CO2 | 8 |
| b | What is the application of robot in FMS? Write merits of robots in FMS. | CO2 | 8 |
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| 4. | a. | Illustrate with an example the manual simulation using event scheduling. | CO2 | 8 |
| b. | Explain cell control function as an advancement of DNC with a block diagram. | CO3 | 8 |
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| 5. | a. | Define Petri net modeling technique. What are the basic components of a petri net modeling? | CO3 | 8 |
| b. | Discuss any two softwares used to implement FMS. | CO4 | 8 |
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| 6. |  | Explain the three major criteria the priority sequencing rule follows in job shop scheduling. | CO4 | 16 |
|  |  |  |  |  |
| 7. |  | Four machines belong to the group technology machine cell. Analysis of 50 parts which are processed on these machines provide the following from-to data for machine (the machines are identified as number). 50 parts enter the machine grouping at machine 3, 20 parts leave after processing at machine 1, and 30 parts leave after at machine 4. Determine from-to ratios and suggest a logical sequence of machines.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | To →  ↓ From | 1 | 2 | 3 | 4 | | 1 | 0 | 5 | 0 | 25 | | 2 | 30 | 0 | 0 | 15 | | 3 | 10 | 40 | 0 | 0 | | 4 | 10 | 0 | 0 | 0 | | CO5 | 16 |
|  | | **COMPULSORY QUESTION (1 x 20 = 20 Marks)** |  |  |
| 8. | a. | Enlist the various functions of automated material handling and storage systems. | CO5 | 10 |
| b | “Automated tool delivery systems add considerably to machining centre overall up-time and performance.” – Justify. | CO6 | 10 |