**18ME701**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **November,2022** | **Mechanical Engineering** | | |
| **Seventh Semester** | **Automation in Manufacturing** | | |
| **Time:** Three Hours | | **Maximum: 5**0 Marks | |
| *Answer Question No. 1 Compulsorily.* | | | (10X1 = 10 Marks) |
| *Answer* ***ANY ONE*** *question from each Unit.* | | | (4X10=40 Marks) |

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| 1. | a) | Write any two functions of storage buffer? | CO1(BL1) | |  |
|  | b) | Define Automation | CO1(BL1) | |  |
|  | c) | Write the features of CNC | CO2(BL1) | |  |
|  | d) | What are the benefits of adaptive control? | CO2(BL1) | |  |
|  | e) | Name the Acronym of APT | CO2(BL1) | |  |
|  | f) | List out the demerits of Automation in manufacturing | CO1(BL1) | |  |
|  | g) | Define group technology | CO3(BL1) | |  |
|  | h) | Write any two benefits of CAPP | CO3(BL1) | |  |
|  | i) | Define flexible manufacturing system | CO4(BL1) | |  |
|  | j) | List out the inspection methods in Automation in manufacturing | CO4(BL1) | |  |
| **Unit - I** | | | | | |
| 2. | a) | Differentiate programmable and flexible automation | CO1(BL4) | 6M | |
|  | b) | What are the various situations where automation is preferred over manual labor? | CO1(BL1) | 4M | |
|  |  | **(OR)** |  |  | |
| 3. | a) | What are the three configurations of automated flow lines? | CO1(BL1) | 6M | |
|  | b) | Explain any four reasons, why storage buffers are used on automated production lines? | CO1(BL2) | 4M | |
| **Unit - II** | | | | | |
| 4. | a) | Categorize the interpolation methods used in CNC and explain with an example. | CO2(BL4) | 5M | |
|  | b) | Explain the MCU of CNC machines. | CO2(BL2) | 5M | |
|  |  | **(OR)** |  |  | |
| 5. | a) | Discuss about NC coding and part programming in numerical control systems. | CO2(BL2) | 5M | |
|  | b) | Explain the part programming of NC machine tools using APT Language. | CO2(BL2) | 5M | |

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| **Unit - III** | | | | |
| 6. | a) | Write a short note on OPITZ and MICLASS coding systems. | CO3(BL3) | 4M |
|  | b) | Explain Production flow analysis to make part families clearly. | CO3(BL2) | 6M |
|  |  | **(OR)** |  |  |
| 7. | a) | Briefly explain how the computer tasks in Computer assisted part programming. | CO3(BL2) | 4M |
|  | b) | Discuss about the retrieval CAPP system and how it integrated with automated manufacturing systems. | CO3(BL2) | 6M |
| **Unit - IV** | | | | |
| 8. | a) | With a block diagram explain components structure of FMS and their functions. | CO4(BL2) | 5M |
|  | b) | Explain how the CIM reduces the human effort by conventional manufacturing. | CO4(BL2) | 5M |
|  |  | **(OR)** |  |  |
| 9. | a) | Discuss briefly about the construction of Coordinate measuring machine. | CO4(BL2) | 5M |
|  | b) | Illustrate the working of machine vision with a neat sketch. | CO4(BL3) | 5M |

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