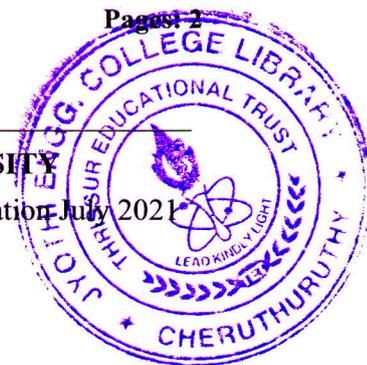


Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Sixth Semester B.Tech Degree Regular and Supplementary Examination July 2021

**Course Code: MR308****Course Name: DIGITAL MANUFACTURING**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer all questions, each carries 5 marks.*

|   |  | Marks |
|---|--|-------|
| 1 | Define 'Automation'. Write various types of Automation.                    | (5)   |
| 2 | How will you classify NC machines?   | (5)   |
| 3 | What are the major elements that has to be incorporated in a CIM system?   | (5)   |
| 4 | Explain in brief how MRP works?  | (5)   |
| 5 | Explain in brief what are AGVS, and how are they guided?                   | (5)   |
| 6 | Explain the flexible manufacturing system? Describe the components of FMS? | (5)   |
| 7 | What are 'TRANSFER LINES', elaborate with an example?                      | (5)   |
| 8 | Explain the working of Resolver?   | (5)   |

**PART B***Answer any three questions, each carries 10 marks.*

|    |   |      |
|----|---|------|
| 9  | Write 10 applications of Numerical controls.  | (10) |
| 10 | a) Differentiate between CNC and DNC machines   | (5)  |
|    | b) Give merits and de-merits of CNC machines  | (5)  |
| 11 | a) Define part programming.   | (5)  |
|    | b) Write short notes on G and M codes   | (5)  |
| 12 | A DC servo motor is coupled to a lead-screw which drives the table of a CNC machine tool. A digital encoder, mounted at the end of the screw, emits 500 pulses per revolution. If the pitch is 5mm per rev, and the motor rotates 600 rpm (1: 1 gear ratio), calculate the: | (10) |
|    | 1. Table speed  |      |
|    | 2. BLU  |      |
|    | 3. Frequency of the pulses transmitted by the encoder   |      |
| 13 | With a suitable diagram, explain the working principle of LVDT.   | (10) |

**PART C**

*Answer any two questions, each carries 15 marks.*

- 14 Classify different types of 'Automation', and explain briefly about them. (15)
- 15 Write some benefits/Advantages of CAPP (Process planning) (15)
- 16 a) Distinguish between Agile and flexible manufacturing. (10)
- b) Write a note on automated data collection system (5)
- 17 a) With suitable block diagrams differentiate material requirements planning with manufacturing resource planning. (10)
- b) "An automated manufacturing cell with two machine tools and robots is a flexible cell". Comment on the statement. (5)

\*\*\*\*\*