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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: 1. Table speed 2. BLU 3. Frequency of the pulses transmitted by the encoder	(10)
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)

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