CBCS SCHEME

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22MIA/MAR235

Second Semester M.Tech. Degree Examination, June/July 2023
Automation and Manufacturing Systems

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain with sketch, the various functions of a manufacturing support system.	10	L1	CO1
	b.	What are ten strategies for automation and process improvement? Explain.	10	L1	CO1
		OR			
Q.2	a.	Explain three types of automation relative to production quantity and production variety.	10	L1	CO1
	b.	Explain different levels of automation and control in manufacturing with the help of a block diagram.	10	L2	CO2
		Module – 2			
Q.3	a.	Explain Feed Forward Control with a neat diagram.	10	L1	CO1
	b.	Explain adaptive control with a neat diagram.	10	L1	CO2
		OR			
Q.4	a.	Explain capabilities of computer control.	10	L2	CO1
	b.	Write short notes on: (i) Polling (ii) Interlocks	10	L3	CO3
		Module – 3			
Q.5	a.	Explain the three types of production machines in a manufacturing system.	10	L2	CO2
	b.	Explain types of operations in manufacturing systems.	10	L3	CO2
		OR			
Q.6	a.	Describe the three functions that characterizes the manufacturing system flexibility.	10	L2	CO2
	b.	Explain the features of two types of multi-station manufacturing systems.	10	L1	CO1
		Module – 4			
Q.7	a.	What is Group Technology? Mention its benefits.	10	L1	CO1
	b.	Explain the features and structures of parts into families.	10	L3	CO3
		OR			

Q.8	**a.**	Apply the rank-order clustering technique to the part-machine incidence matrix in Table.Q8(a). Table.Q8(a)	**12**	**L3**	**CO3**
	b.	What is cellular manufacturing? What are the typical objectives when implementing cellular manufacturing?	**08**	**L1**	**CO1**
		Module – 5			
Q.9	**a.**	What is a flexible manufacturing system? List and explain basic components of FMS.	**10**	**L1**	**CO1**
	b.	Explain Flexible and Rigid Manufacturing. List and explain different types of FMS.	**10**	**L2**	**CO2**
		OR			
Q.10	**a.**	What is flexibility? Explain three levels of manufacturing flexibility.	**10**	**L1**	**CO1**
	b.	Explain the functions of FMS computer control system.	**10**	**L2**	**CO2**

	A	B	C	D	E	F	G	H	I
1	1			1				1	
2					1				1
3			1		1				
4		1				1			
5	1							1	
6			1						
7		1				1	1		

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