Question Paper Code	12709

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024
Sixth Semester
Mechanical and Automation Engineering
20MUPC603 - INDUSTRIAL AUTOMATION FOR MANUFACTURING
Regulations - 2020

Duration: 3 Hours   Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

		Marks	K-Level	CO
1.	Classify the types of advanced automation functions.	2	K2	CO1
2.	Name any two work part transfer methods.	2	K1	CO1
3.	List any three strategies of automation.	2	K1	CO1
4.	Define storage buffers.	2	K1	CO1
5.	Define - Cellular Manufacturing.	2	K1	CO3
6.	Write the parts classification and coding.	2	K1	CO3
7.	Define data acquisition.	2	K1	CO4
8.	Classify the types of SCADA system.	2	K1	CO4
9.	What is LCU?	2	K1	CO5
10.	Define PROFIBUS.	2	K1	CO5

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

				K-Level	CO
11.	a)	Explain the different types of the elements of an automated system.	13	K2	CO1
		OR			
	b)	Explain the automated flow line and transfer mechanisms.	13	K2	CO1
12.	a)	Explain the different levels of automation in detail with an example.	13	K2	CO1
		OR			
	b)	Explain about the analysis of transfer lines without storage buffers.	13	K2	CO1
13.	a)	Summarize the benefits, advantages and disadvantages of group technology.	13	K2	CO3
		OR			
	b)	Discuss the various levels of flexibility in detail with neat sketch.	13	K2	CO3

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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14. a) Explain the construction and working of Direct Digital Control (DDC) with neat block diagram. *13 K2 CO4*

<div align="center">**OR**</div>

b) Compare the SCADA in flow meters and mass flow meters in detail with neat sketches. *13 K2 CO4*

15. a) Explain the various blocks in LCU and List the different configurations of LCU. *13 K2 CO5*

<div align="center">**OR**</div>

b) Explain in detail about the fieldbus and HART protocol. *13 K2 CO5*

<div align="center">**PART - C (1 × 15 = 15 Marks)**</div>

16. a) Explain the process planning in the manufacturing support system. *15 K2 CO2*

<div align="center">**OR**</div>

b) Explain the advantages and disadvantages of simulation language and write its application? What are the difficulties in GPSS simulation? *15 K2 CO2*