Model Question Paper-1

Model Question Paper-1/2 with effect from 2022-23 (CBCS Scheme)

USN | | | | | | | | | | |

Fourth Semester B.E. Degree Examination

Smart Factory and Industry 4.0

TIME: 03 Hours **Max. Marks: 100**

Note: Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

		Module -1	CO	*Bloom's Taxonomy Level	Marks
Q.01	a	Define Smart Manufacturing and explain its significance in modern industrial contexts.	CO1	L1, L2	10
	b	Describe the concept of a demand-driven supply chain and its benefits for manufacturers.	CO1	L2	10
		OR			
Q.02	a	Define and explain sustainable resource management with reference to Smart Manufacturing.	CO1	L1, L2	10
	b	Illustrate the Smart Manufacturing principles contribute to the optimization of plant operations	CO1	L2	10
		Module-2			
Q.03	a	Explain the concept of Smart Design/Fabrication and its role in modern manufacturing.	CO2	L2	10
	b	Discuss the challenges associated with implementing mass customization in manufacturing operations.	CO2	L2	10
		OR			
Q.04	a	Explain the role of sensor networks and devices in enabling smart perception in manufacturing environments.	CO2	L2	10
	b	Discuss the advancements in robotics and automation technologies that contribute to Smart Design/Fabrication.	CO2	L2	10
		Module-3			
Q.05	a	Explain the concept of online predictive modeling in manufacturing processes.	CO3	L2	10
	b	Describe the role of intelligent control systems in optimizing manufacturing operations.	CO3	L2	10
		OR			
Q.06	a	Explain the significance of online monitoring with reference to manufacturing and supply chain processes.	CO3	L2	10
	b	Describe the importance of integrating smart energy management systems with manufacturing processes and supply chain operations.	CO3	L2	10
		Module-4			
Q.07	a	Define IoT and IIoT. How do they differ in terms of applications	CO4	L1, L2	10
	b	Explain the role of cloud computing in supporting IoT and IIoT applications in Industry 4.0.	CO4	L2	10
		OR			

Q.08	a	Define feedback systems and its importance in the context of IoT and IIoT implementations.	CO4	L1, L2	10
	b	Describe common data acquisition mechanisms used in IoT and IIoT systems.	CO4	L2	10
Module-5					
Q.09	a	Define deskilling operations and explain its significance with reference to smart manufacturing.	CO5	L1,L2	10
	b	Describe the common errors and omissions that occur in manufacturing and warehouse operations.	CO5	L2	10
OR					
Q.10	a	Define assisted and augmented production and explain its applications in various aspects of manufacturing and warehouse operations.	CO5	L1,L2	10
	b	Explain how smart technologies assist in predictive maintenance and optimize warehouse operations.	CO5	L2	10