


Name:			
Enrolment No:			
UPES End Semester Examination, December 2024			
Course: Automation in manufacturing Program: B.Tech Mechatronics Course Code: MEPD4014		Semester: VII Time : 03 hrs. Max. Marks: 100	
Instructions:			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Differentiate between fixed automation and flexible automation.	4	CO1
Q 2	Explain the Opitz coding system.	4	CO1
Q 3	Discuss the importance of automation in the food industry.	4	CO2
Q 4	Discuss briefly the various types of material handling equipment used in manufacturing industries.	4	CO1
Q 5	Explain the concept of group technology and how it applies to cellular manufacturing.	4	CO1
SECTION B (4Qx10M= 40 Marks)			
Q 5	Devise a plan to evaluate the performance of a storage system.	10	CO3
Q 6	Define accuracy, precision, reliability, stability, and durability.	10	CO1
Q 7	Evaluate the advantages of RFID technology over barcodes in automated material handling systems.	10	CO2
Q 8	Discuss how cellular manufacturing contributes to reducing lead time and inventory levels. Or Analyze how a good production planning and production layout can minimize operational costs in manufacturing.	10	CO3

SECTION-C
(2Qx20M=40 Marks)

Q 9	Create a block diagram illustrating the Adaptive Control with Optimization system specifically applied to selective laser welding and provide a detailed explanation of each block. Additionally, explain the variables involved in this system that are used to maintain a desired MPW (Melt Pool Width)	20	CO4
Q 10	Conduct a quantitative analysis to highlight the benefits of FMS in reducing lead times and improving productivity. Or Analyze the design considerations for a) Material Handling Systems and b) Material Handling Analysis	20	CO3