


<b>Name:</b>			
<b>Enrolment No:</b>			
<b>UPES</b> <b>End Semester Examination, December 2023</b>			
<b>Course: Automation in Manufacturing</b> <b>Program: B.Tech. Mechatronics Engineering</b> <b>Course Code: MEPD 4014</b> <b>Instructions: Draw figures and diagrams, wherever required.</b>		<b>Semester: VII</b> <b>Time : 03 hrs.</b> <b>Max. Marks: 100</b>	
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
<b>S. No.</b>		<b>Marks</b>	<b>CO</b>
Q 1	Define the significance of Automation in the current industry scenario.	4	CO4
Q 2	Explain the concept and components of Cellular manufacturing and its advantages.	4	CO2
Q 3	Explain the characteristics of Primary, Secondary, and Tertiary Industries?	4	CO1
Q 4	Critically analyze the impact of material transport and storage systems on the sustainability of manufacturing operations.	4	CO2
Q 5	Describe the idea of group technology.	4	CO1
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q 1	Explain the primary components of an automated system and their interconnections with the help of a diagram.	10	CO3
Q 2	Assess the strengths and weaknesses of Bar code, QR code technologies, and RFID and AIDC technologies, focusing on their advantages and limitations.	10	CO4
Q 3	Elaborate on the concept of SCADA and discuss how it enhances the operational efficiency of process industries.	10	CO2
Q 4	Describe the phases involved in an Automation migration strategy using a phase diagram.  <b>OR</b> Explain different material transport equipment's used in material handling and evaluate the performance based on location strategies.	10	CO1
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b>			
Q 1	Explain the concept of integrated automated production lines and automated assembly systems in the context of automobile production, and illustrate their operation with a schematic diagram. Furthermore, elucidate the varying levels of automation in T1, T2, and T3 vendors.	20	CO3
Q 2	Assess the quality and precision of Inspection technologies, such as coordinate measuring machines, surface measurement methods, and machine vision, in terms of their contribution to quality control and defect detection.  <b>OR</b> Explain design considerations used for material handling and material storage system in ware house management.	20	CO4