


Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End semester examination for graduating batch, August 2020

Course: B tech Mechatronics Engg

Program: Theory of Automation

Course Code: MEEL415

Semester: VIII

Time 03 hrs.

Max. Marks: 100

Instructions:

SECTION A

S. No.		Marks	CO
Q 1	What is the requirement of industrial automation?	5	CO 1
Q 2	Explain the advantages of online inspection over offline inspection.	5	CO 3
Q 3	Differentiate between product layout and process layout.	5	CO 3
Q 4	Discuss the features of flexible manufacturing system.	5	CO 5
Q 5	Differentiate between in line type and rotary type of automated flow lines.	5	CO 1
Q 6	Define Group Technology. List out the stages in Group Technology.	5	CO 5

SECTION B

Q 7	Explain major classification of material handling equipment systems and suggest one best suitable one based of its path of material flow.	10	CO 2
Q 8	Compare fixed, flexible and programmable automation based on space utilization principle.	10	CO 2
Q 9	Justify how various sensor can be used as a feedback device during the process control and automated material handling to monitor the process flow. <p style="text-align: center;">OR</p> Explain how the feedback based control systems and safety systems operate in a materials handling facility with example.	10	CO 4

SECTION C

Q 7	(i) Discuss the need of implementation of cellular manufacturing in industries and explain the part families- its identification and formation. (ii) Briefly discuss about OPITZ mixed mode classification of part family.	10+10	CO 5
Q 8	Discuss the characteristics of flexible manufacturing systems. What are its selection criteria in an automated industry? Justify its requirement with an example.	20	CO 5
OR			

	<p>Explain how Flexible manufacturing system can lead to industrial automation with an example. Enlist its advantages, application and benefits.</p>		
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