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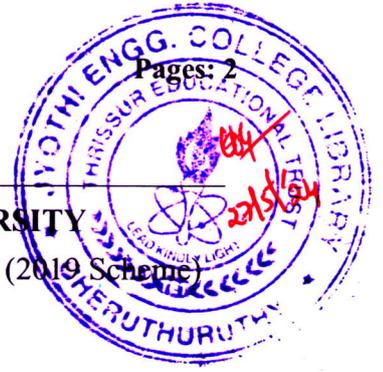
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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Seventh Semester B.Tech Degree (S, FE) Examination May 2024 (2019 Scheme)

Course Code: MRT401

Course Name: ADVANCED AUTOMATION SYSTEMS

Max. Marks: 100   **Duration: 3 Hours**

PART A
Answer all questions, each carries 3 marks.   Marks

1	What are the limitations and capabilities of a manufacturing plant?	(3)
2	List out the ten strategies of automation systems.	(3)
3	Differentiate between continuous and discrete control systems	(3)
4	Explain how safety monitoring is done in manufacturing systems	(3)
5	Classify FMS workstations and give its features	(3)
6	Describe the objectives of material handling systems	(3)
7	Differentiate between contact and non-contact inspection techniques with the help of examples	(3)
8	List down the advantages of cellular manufacturing.	(3)
9	Explain the material handling system	(3)
10	What are the applications of machine vision?	(3)

PART B
Answer any one full question from each module, each carries 14 marks.

Module I

11	a)	Discuss the factors that are determining how the products are being manufactured	(9)
	b)	Explain about automation migration strategy.	(5)

OR

12	a)	Explain in detail about the ten strategies of automation systems	(10)
	b)	Write a short note on manual labor in the production system	(4)

Module II

13	a)	Explain why advanced automation functions are implemented in manufacturing systems	(4)
	b)	Explain in detail about the elements of an automated system	(10)

OR

14 a) Differentiate between different modes of control systems with the help of diagrams (6)

   b) Write a short note on error detection and recovery in an automated system (8)

Module III

15 a) Define learning curves. Explain its importance in manufacturing systems (6)

   b) Briefly explain classification of manufacturing systems (8)

OR

16 a) What are the components of manufacturing systems (10)

   b) Explain the role of human resources in manufacturing systems. (4)

Module IV

17 a) Define CMM (4)

   b) Describe about six types of mechanical structure of CMM. (10)

OR

18 a) List any four CMM softwares (4)

   b) Explain group technology. List the application of group technology (10)

Module V

19 a) Define Flexible manufacturing system (4)

   b) Describe about the types of flexible manufacturing systems and mentioned its features (10)

OR

20 a) Explain the importance of machine vision in manufacturing (4)

   b) Describe about image acquisition and digitalization, image processing and analysis and interpretation (10)

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