A   **1000MRT401122201**   Pages: 2
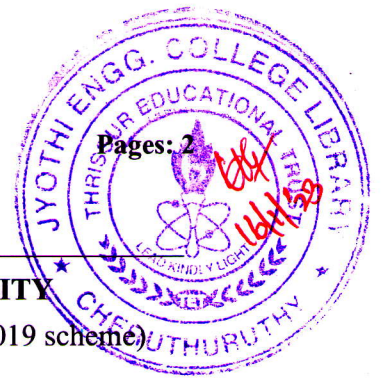
Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Seventh Semester B.Tech Degree Examination December 2022 (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 some of the reasons why companies automate their operations?	(3)
2	What are the four functions included within the scope of manufacturing support system?	(3)
3	List the methods of error detection and error recovery in automation system?	(3)
4	Define the Programmable logic controller?	(3)
5	Describe the production machine and its types?	(3)
6	Explain Learning curves?	(3)
7	Define cellular manufacturing and explain its purpose?	(3)
8	Describe the software's used in CMM?	(3)
9	Write a short note FMS planning and design issues?	(3)
10	Compare Lean and Agile manufacturing?	(3)

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

Module I

11	a)	What is a USA principle? what does each of the letters stand for?	(4)
	b)	Explain ten strategies for automation and process improvement?	(10)

OR

12	a)	Identify three situations in which manual labor is preferred over automation?	(4)
	b)	What are manufacturing system and how they distinguished from production system?	(10)

Module II

13	a)	Define five level of automation?	(5)
	b)	Describe advanced automation functions in manufacturing system?	(9)

OR

14 a) Explain computer process control and its types?   (10)

b) Write a short note on Numerical control?   (4)

Module III

15 a) How manufacturing system classify. List and explain the classification scheme   (11)
of manufacturing system?

b) Write the functions of computer control system?   (3)

OR

16   What are the components of manufacturing systems? Explain the role of human   (14)
resources in manufacturing systems?

Module IV

17 a) Explain Group technology?. List the application of Group technology?   (4)

b) Prove that CMM is a contact or Non-contact inspection technique?   (10)

OR

18 a) Describe in detail about the Part Families? And also explain the three methods   (14)
used in Part families?

Module V

19   What is FMS? Describe about the types of flexible manufacturing systems and   (14)
mentioned its features?

OR

20 a) Define Machine vision?. List the importance of machine vision?   (3)

b) Describe about image acquisition and digitalization, image processing and   (11)
analysis and interpretation?

****