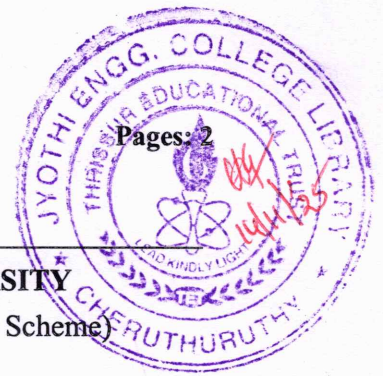


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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S7 (R,S) Examination November 2025 (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 | How would you define a production system? | (3) |
| 2 | What are the two levels of a production system, and how would you define them? | (3) |
| 3 | How do process parameters differ from process variables? | (3) |
| 4 | What is safety monitoring in an automated system? | (3) |
| 5 | What are the three classification of production machine, in terms of worker participation? | (3) |
| 6 | What is a manufacturing system? | (3) |
| 7 | How would you define group technology? | (3) |
| 8 | What is part family? | (3) |
| 9 | Explain the term coordinate metrology. | (3) |
| 10 | What is the difference between a dedicated FMS and random order FMS? | (3) |

PART B

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

Module I

- | | | |
|----|--|------|
| 11 | a) Elaborate Automation migration strategy. | (4) |
| | b) What are the ten strategies for automation and process improvement. | (10) |

OR

- | | | |
|----|--|-----|
| 12 | a) Write a brief note on the role of manual labour in the production system. | (6) |
|----|--|-----|

- b) Explain in detail about the functions of a manufacturing support system. (8)

Module II

- 13 a) Describe the different methods used for Error detection and Error recovery? (6)
b) With the help of a neat sketch explain the levels of Automation. (8)

OR

- 14 a) What is computer process control? (4)
b) Explain in detail about the basic elements of an automated system? (10)

Module III

- 15 a) With the help of neat sketches explain the types of routing in multi-station manufacturing system. (6)
b) What is part or product variety in manufacturing system? (8)

OR

- 16 Explain the factors in manufacturing classification scheme. (14)

Module IV

- 17 What is production flow analysis and explain the steps with the help of PFA chart. (14)

OR

- 18 a) Differentiate between cellular manufacturing and group technology. (6)
b) List the applications of Group Technology. (8)

Module V

- 19 Explain the construction and working of a coordinate measuring machine CMM with neat diagrams. (14)

OR

- 20 a) Describe the basic elements of image interpretation. (7)
b) Explain the benefits of Flexible Manufacturing System. (7)
