

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Supplementary Examination June 2022 (2015 Scheme)

**Course Code: MR401****Course Name: ADVANCED AUTOMATION SYSTEMS**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer all questions, each carries 5 marks.*

Marks

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| 1 | What is programmable automation and what are some of its features? | (5) |
| 2 | Comment on the automation migration strategy | (5) |
| 3 | Write a short note on continuous control system? | (5) |
| 4 | What is Material Handling System? Explain briefly | (5) |
| 5 | What is the Non-Contact Inspection? What are the advantages of it | (5) |
| 6 | With respect to measuring instruments, what is calibration? | (5) |
| 7 | Define a flexible manufacturing system and mention the three basic components of a flexible manufacturing system? | (5) |
| 8 | Define lean production and compare with mass production | (5) |

PART B*Answer any three full questions, each carries 10 marks.*

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| 9 | a) Some companies automate their operations, What are the various reasons for this? | (10) |
| 10 | a) Explain the various situations in which Manual labor is preferred over automation even in the most highly automated systems. | (10) |
| 11 | a) What are some of the advanced functions of Automation? Explain | (10) |
| 12 | a) Explain components of a manufacturing system and explain each component briefly? | (10) |
| 13 | a) Explain Cellular Manufacturing. List out its various stages. | (5) |
| | b) What are the advantages of cellular manufacturing | (5) |

PART C*Answer any two full questions, each carries 15 marks.*

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| 14 | a) Define the accuracy and precision in measurement with a neat sketch. What is the difference between them? | (8) |
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- b) What is meant by the term coordinate metrology and coordinate measuring machine? What are the components of CMM? (7)
- 15 a) What is Machine Vision? List and draw a block diagram of a machine vision system (8)
- b) What are the applications of Machine vision? (7)
- 16 a) What are the various types of workstations found in a flexible manufacturing system (8)
- b) List out the functions of material handling and storage systems in an FMS (7)
- 17 a) What is the impact of agile manufacturing in product design, marketing and production operations? Explain (15)
