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10000MR401052202



Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree (S, FE) Examination May 2024 (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

- | | | |
|---|---|-----|
| 1 | Comment on Automation migration strategy | (5) |
| 2 | Explain the levels of automation | (5) |
| 3 | Define part families and mention its features | (5) |
| 4 | Differentiate between fixed routine and variable routine layout | (5) |
| 5 | Describe about contact inspection methods | (5) |
| 6 | Comment on advantages of machine vision | (5) |
| 7 | Compare lean production with agile manufacturing | (5) |
| 8 | Briefly describe FMS | (5) |

PART B

Answer any three full questions, each carries 10 marks.

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| 9 | a) Explain the USA principle and ten strategies of automation | (10) |
| 10 | a) Explain each of the advanced automation function in detail | (10) |
| 11 | a) Differentiate between different modes of control systems with help of diagrams | (10) |
| 12 | a) Define part families and explain in detail about the three common methods used to group various parts into part families | (10) |
| 13 | a) What is cellular manufacturing and explain in detail about the two aspects of cellular manufacturing | (10) |

PART C

Answer any two full questions, each carries 15 marks.

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| 14 | a) Describe CMM construction with sketch | (10) |
| | b) List the benefits of CMM | (5) |
| 15 | a) Describe about image acquisition and digitalization, image processing analysis and interpretation | (15) |
| 16 | a) Define FMS | (5) |
| | b) Describe about the types of FMS and mention its features | (10) |
| 17 | a) Explain various FMS layout configuration with sketches | (10) |
| | b) What are the material handling equipments used in production systems? | (5) |
