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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester B.Tech (Honours) Degree Examination June 2023 (2021 Admission)

Course Code: MRT294

Course Name: INDUSTRIAL AUTOMATION

Max. Marks: 100

Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks)

		Marks
1	Specify the significance of automation in industry.	3
2	Discuss the various components in material handling systems.	3
3	Define signal conditioning and processing.	3
4	List any three displacement sensors.	3
5	Mention the applications of SCADA in real-time industries.	3
6	Draw the ladder program for logical OR gate.	3
7	Define PID control and its needs in automation.	3
8	Write any three advantages of Flexible Manufacturing Systems.	3
9	List some applications of IoT in the industry.	3
10	Define IoT enabled PLC.	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

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| 11 | Discuss in detail the various levels of automation and list some real-time examples for automation systems. | 14 |
| 12 | What are the potential areas of industrial automation, and justify the need for automation in the current scenario with suitable advantages? | 14 |

Module -2

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| 13 | Explain various types of encoders with applications and suitable sketches. | 14 |
| 14 | Enumerate the different types of temperature sensors, with neat figures. | 14 |

Module -3

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| 15 | Describe PLC with a neat block diagram. | 14 |
| 16 | Explain ladder programming in PLC. Draw the ladder program for a simple sequential circuit. | 14 |

Module -4

- 17 Explain computer numerical control, and list the advantages and applications of CNC. 14
- 18 Compare manufacturing cells and Flexible Manufacturing System. 14

Module -5

- 19 Elucidate the importance of IoT in industrial automation with suitable real-time examples and applications. 14
- 20 Explain the importance of machine vision with suitable sketches and its applications. 14
