Register No.: ………………………………   Name: ………………………………………………………………………

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SECOND SEMESTER M. TECH DEGREE EXAMINATION (Regular), JULY 2022
ROBOTICS AND AUTOMATION
(2021 Scheme)

Course Code: 21RA201

Course Name: **Industrial Automation**

Max. Marks: **60**   **Duration: 3 Hours**

PART A
(Answer all questions. Each question carries 3 marks)

1. List the benefits of automation in an industry.
2. Explain the various levels of industrial automation.
3. Describe the various material handling equipment used in industries.
4. Mention five applications of CNC machines.
5. Identify the five main material transport equipments.
6. Can Group Technology (GT) be implemented in all types of manufacturing units? Justify your statement.
7. Discuss the use of control charts in quality controls.
8. Explain the concept of Design for Manufacturing (DFM).

PART B
(Answer one full question from each module, each question carries 6 marks)

MODULE I

9. Explain the basic elements of automation with neat figures.   (6)

OR

10. Identify nine reasons for automating a manufacturing unit.   (6)

MODULE II

11. Sketch and describe the process of achieving frictionless movement in a CNC machine.   (6)

OR

12. Explain about the two types of motion controls used in CNC machines.   (6)

MODULE III

13. Discuss about the design considerations taken while designing a material handling system.   (6)

OR

14.	Explain about the different Automatic Identification Methods.	(6)

MODULE IV

15.	Discuss about the factors in manufacturing systems classification schemes.	(6)

OR

16.	Describe Flexible Manufacturing Systems (FMS). How can it be implemented in an existing industry?	(6)

MODULE V

17.	Explain with block diagram about SCADA systems.	(6)

OR

18.	Compare continuous and discrete process control.	(6)

MODULE VI

19.	Illustrate the implementation of Poka Yoke in an industry.	(6)

OR

20.	List and explain the main considerations a designer must take while doing design for assembly.	(6)

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