D **111B1** **Total pages: 2**

Register No: …… Name: .....

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(R), MAY 2024

Robotics and Automation

(2020 SCHEME)

Course Code : 20RBT416

Course Name : MECHATRONIC SYSTEM DESIGN

Max. Marks : 100 **Duration:3 Hours**

PART A

(Answer all questions. Each question carries 3 marks)

1. Explain the working principle of capacitive transducers.
2. List the applications of mechatronic systems.
3. Define an actuator.
4. Write the advantages and disadvantages of hydraulic actuator.
5. Explain control system with suitable example.
6. Explain characteristics of fuzzy logic.
7. Quote the advantages of modular approach in design of systems.
8. List the types of conveyors available in automatic control system.
9. What are the key features of remote monitoring and control systems ?
10. Explain spindle system review.

PART B

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

MODULE I

11. Explain the construction and working of bourdon pressure guage. 14

OR

12. Define transducer. With suitable examples write down the classifications of transducers. 14

MODULE II

13. Explain slider-crank mechanism with neat schematic. 14

OR

14. With neat diagrams explain different types of chain drives. 14

MODULE III

15. Explain all possible faults find in a thermal power plant. 14

OR

16. Compare analog control versus digital control. 14

MODULE IV

17. Explain types of industrial robots with suitable application. 14

OR

18. Explain system validation in detail. 14

MODULE V

19. Design a modern automatic snacks vending machine. 14

OR

20. Design a system for automatic door by detecting motion. 14

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