

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**B. Tech. Mechanical Engineering****(2020 SCHEME)****Course Code : 20MET402****Course Name : Mechatronics****Max. Marks : 100****Duration:3 Hours****PART A***(Answer all questions. Each question carries 3 marks)*

1. Differentiate between hydraulics and pneumatics.
2. Suggest two applications of Hall effect sensor in mechatronic systems.
3. Discuss the importance of pneumatic circuits?
4. Write short note on MEMS.
5. Comment on the stick-slip phenomenon associated with friction guide ways.
6. Why mathematical modelling is for?
7. Explain about open loop controllers.
8. List any three applications of PLC.
9. Elucidate the working of DC motors.
10. Discuss about range finder.

PART B*(Answer one full question from each module, each question carries 14 marks)***MODULE I**

11. Explain the time line of Mechatronics with examples. 14

OR

12. a. Write short note on grey code. 4
b. How grey code works with suitable figures and datas with an application ? 10

MODULE II

13. Explain with neat diagrams different valves used in fluid power actuators. 14

OR

14. Explain the LIGA process in MEMS fabrication with neat sketches. 14

MODULE III

15. Explain the importance of system modelling in mechatronics design and development. How can system modelling enhance the integration of mechanical, electrical, and computer systems to develop sophisticated mechatronic systems? 14

OR

16. With neat diagrams, illustrate the components of a modern CNC milling center. 14

MODULE IV

17. Develop PLC programmes for AND, OR and NOT logic gates. 14

OR

18. Make mechatronic system for a pick and place robot. 14

MODULE V

19. Describe the various functions of robotic vision systems. 14

OR

20. List and explain the various image processing techniques now in use. 14
