

UNIT - IV

8. (a) Discuss the designing aspects of a mechatronics system like camera. (10)
- (b) Explain robotic automatic spray painting system. (10)
9. Explain the following :
- (a) Stepper and Servomotors (5)
- (b) Solenoids (5)
- (c) Line actuators and controllers with application to CNC (5)
- (d) Line encoders and revolvers. (5)

Roll No.

22614

**M.Tech. 1st Semester (MAE) –
CBCS Scheme Examination–
December, 2016**

MECHATRONICS & PRODUCT DESIGN

Paper : MTMA21C2

Time : 3 hours

Max. Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

Note : Attempt **five** questions in all, selecting **one** question from each unit. Q. 1 is **compulsory**. All questions carry equal marks.

1. Explain the following :

- (a) Number system logic gates. (4)
- (b) Integrated Circuits (4)

- (c) Electronic hardware in Mechatronic system (4)
- (d) A.D. and D.A. converters. (4)
- (e) MATLAB and SIMULINK (4)

UNIT - I

- 2. (a) Describe the various types of Amplifiers and their applications in detail. (10)
- (b) Explain the Sequence logic flip flop system, JK flip flop and D-flip flop in detail. (10)
- 3. Explain the following :
 - (a) Low pass and high pass filters. (10)
 - (b) Microprocessors and their applications (10)

22614-450-(P-4)(Q-9)(16) (2)

UNIT - II

- 4. (a) Describe the criteria for selection of Sensor for a particular application. (10)
- (b) Explain the liquid level, force, proximity and light sensor in detail. (10)
- 5. Explain in detail Electrical and Pneumatic actuation systems in detail and their applications. (20)

UNIT - III

- 6. (a) Explain the principles of electronic system communication and interfacing in detail. (10)
- (b) Describe the software and hardware principles and tools to build mechatronic systems. (10)
- 7. Explain the system models of Rotational, Translation, Mechanical and Hydraulic system. (20)

22614-450-(P-4)(Q-9)(16) (3)

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