

6E7013

Roll No. : _____

Total Printed Pages : **3****6E7013**

B. Tech. (Sem. VI) (Main / Back) Examination, April-May 2018
Mech. Engg.
6ME3A Mechatronics

Time : 3 Hours**Maximum Marks : 80**
Min. Passing Marks : 26

Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL . 2. NIL

UNIT - I

- 1 (a) Write the scope and application of mechatronic system. **8**
- (b) What do you mean by flexible manufacturing system (FMS) ? Write merits and demerits of FMS. **8**

OR

- 1 (a) What do you mean by Mechatronics ? **8**
- (b) Explain the basics of micro and nanotechnology including their applications. **8**

UNIT - II

- 2 (a) Explain the working of Linear variable differential transducer (LVDT) with suitable diagram. 8
- (b) Explain the working principle of pneumatic and hydraulic actuator with diagram. 8

OR

- 2 (a) Write a brief introduction of actuator. Write its applications. 6
- (b) Define the following term :
- (i) Hall effect sensor
 - (ii) Proximity sensor
- 10

UNIT - III

- 3 (a) What is the role of control in Mechatronics ? Explain in detail. 8
- (b) Explain the principle of operation of the variable reluctance stepper motor. 8

OR

- 3 (a) How can you define design optimization of mechatronics system ? 8
- (b) Explain continuous and discrete time signals. 8

UNIT - IV

- 4 (a) Define "Data Acquisition" system in mechatronics. 6
- (b) Define the following terms :
- (i) Quantizing theory
 - (ii) Digital to Analogue Converter (DAC) 10

OR

- 4 (a) Explain the role of Data Loggers (DL) and computer with plug in board in data acquisition system. 8
- (b) Explain Analogue to digital converter (ADC). 8

UNIT - V

- 5 How can you define elevators and escalator, their working, also show the role of mechatronics. 16

OR

- 5 Explain any two mechatronic systems with suitable diagrams. 16
- (a) Engine Management system
 - (b) Automatic Camera
 - (c) Automatic Washing Machine.
