

ET602M4 - Mechatronic Systems

P. Pages : 1

Time : Three Hours



GUG/W/24/13935

Max. Marks : 80

-
- Notes :
1. All questions carry marks as indicated.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What is Mechatronics? Describe in your own words the design approach of Mechatronics. **8**
b) Describe in details the concept of Human Machine Interface (HMI). **8**

OR

2. a) What are the challenges and limitation in designing of Mechatronics system. **8**
b) Elaborate Integrated design approach with the help of block diagram. **8**

3. a) What is Sensor? Describe the construction and working of potentiometer sensor with neat sketch. **8**
b) Describe in details the construction and working of LVDT with the help of neat sketch. **8**

OR

4. a) Discuss in details the selection criterion of transducer along with suitable example. **8**
b) List the different types of sensor explain any one in detail along with example. **8**
5. a) Describe Servo motor in detail along with its constructional feature. **8**
b) Differentiate between open loop and closed loop control system with suitable example. **8**

OR

6. a) Discuss the construction and working of stepper motor in detail. **8**
b) State the types of control system. Describe closed loop control system along with suitable example. **8**

7. a) Discuss in details the working of Piezo-electric Actuator. **8**
b) Describe quality attributes of embedded system in detail with proper diagram. **8**

OR

8. a) How can embedded system be tested for vibration resilience. **8**
b) How does memory hierarchy work in embedded system. **8**
9. a) State and explain the steps involved in lithography process. **8**
b) Discuss the design consideration of Mechatronics system for Automatic Washing Machines. **8**

OR

10. a) Elaborate the concept of LIGA process in details. **8**
b) What are the emerging trends and advancements in etching process. **8**
