

**ET602M4 / MECH1 - Open Elective-II : Mechatronics Systems**

P. Pages : 2

**GUG/S/25/13935**

Time : Three Hours



Max. Marks : 80

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- 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 system? Describe along with suitable example. **8**
- b) Discuss the concept of Human Machine Interface (HMI). **8**

**OR**

2. a) List out key element of Mechatronics system. Explain design consideration of Mechatronics system. **8**
- b) Differentiate between traditional system and mechatronics system along with suitable examples. **8**
3. a) Discuss the Linear displacement measurement techniques using LVDT in details. **8**
- b) Illustrate the concept of Machine vision system. **8**

**OR**

4. a) Discuss the selection criteria for temperature transducers. **8**
- b) With the help of neat diagram explain the mechanism of temperature measurement using Resistance Temperature Detector (RTD). **8**

**OR**

5. a) What is drive system? List out it's types also explain any one in details. **8**
- b) Elaborate the concept of Electrical Actuator with the help of neat diagram. **8**

**OR**

6. a) Describe sequencing in pneumatic system along with suitable example. **8**
- b) What is control system? List out it's types. Explain closed Loop system in details. **8**
7. a) List out types of I/O devices used in embedded system. Explain any one in detail. **8**
- b) Elaborate the concept of PLD with the help of suitable example. **8**

**OR**

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|-----------|----|--|----------|
| <b>8.</b> | a) | Discuss the Quality attributes of Embedded system.                                   | <b>8</b> |
|           | b) | Describe in details about Embedded Firmware design.                                  | <b>8</b> |
| <b>9.</b> | a) | What is etching? List out it's types of etching process. Explain any one in details. | <b>8</b> |
|           | b) | Design a mechatronics system for an automatic washing machines.                      | <b>8</b> |

**OR**

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|------------|----|---|----------|
| <b>10.</b> | a) | Describe in your own words about micro fabrication technique in LIGA process. | <b>8</b> |
|            | b) | Discuss the applications of chemical and Bio-chemical microsensors.           | <b>8</b> |

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