

**ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES**  
**(AUTONOMOUS)**  
M.Tech II-Semester Regular Examinations, May 2016  
**MECHATRONICS**  
**(MACHINE DESIGN)**

**Date:**

**Time: 3 hours**

**Max Marks: 60**

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**Answer ONE Question from each unit**

**All questions carry equal marks**

**All parts of the question must be answered at one place only**

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1. A. What are the various applications of mechatronics? Discuss them briefly. **6M**  
B. What are the basic elements of mechatronics system? Discuss them briefly. **6M**

**OR**

2. A. What are the key elements of mechatronics? Explain with neat sketch. **12M**

**UNIT-II**

3. A. What are the two fundamental objects consists in simplifying a block diagram. **6M**  
B. Simplify and reduce the mass-spring-damper Block diagram. **6M**

**OR**

4. A. With any suitable example explain Mechanical translational systems. **6M**  
B. Construct a hydraulic actuator impedance diagram. **6M**

**UNIT-III**

5. Define a sensor and explain the classification of sensors with a suitable example. **12M**

**OR**

6. What do you mean by transduction principle? and explain different type of transducers. **12M**

**UNIT-IV**

7. What is real time interfacing and explain in elements of data acquisition system. **12M**

**OR**

8. Define **4M**  
i. Time delay **4M**  
ii. Root locus **8M**

**UNIT-V**

9. What are the necessary requirement of installation of software I/O CARD.? **12M**

**OR**

10. What is artificial intelligence and how it can be used in mechatronics. **12M**

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