

**B.TECH.**  
**(SEM VI) THEORY EXAMINATION 2018-19**  
**MECHATRONICS**

**Time: 3 Hours****Total Marks: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A**

- 1. Attempt all questions in brief.** **2 x 10 = 20**
- Differentiate between conventional & mechatronics system design.
  - List the applications of microcontroller.
  - What are the inductor and capacitor?
  - What do you mean by flip-flops?
  - Define the term "Pneumatics".
  - What are micro-actuators?
  - Write the performance characteristics of sensor.
  - What are the features of microprocessor?
  - What are the differences between sensor and transducer?
  - Differentiate between AC Servomotor & DC Servomotor.

**SECTION B**

- 2. Attempt any three of the following:** **10x3=30**
- List the analog to digital convertor and explain any one in detail.
  - Explain the merit and demerits of mechatronics system with suitable example.
  - What do you mean by actuators? Write the classification of actuators with diagram.
  - Explain the static & dynamic characteristics of sensors.
  - What is DNC? Explain the types of DNC and also write the comparison between DNC and CNC.

**SECTION C**

- 3. Attempt any one part of the following:** **10x1=10**
- What are the emerging areas of mechatronics
  - Explain the Cam&Follower with its different types.
- 4. Attempt any one part of the following:** **10x1=10**
- Define passive electrical components. Also explain any two passive electrical Components used in mechatronics.
  - Draw the architecture of PLC and explain the function of its elements.
- 5. Attempt any one part of the following:** **10x1=10**
- What is transfer function of the system? Write its advantage and disadvantages.
  - Explain the physical components in hydraulic system with diagram.
- 6. Attempt any one part of the following:** **10x1=10**
- What is transducer? Which parameters are used to define the performance of transducers?
  - Explain the working of automatic car parking system with block diagram.
- 7. Attempt any one part of the following:** **10x1=10**
- Briefly explain the features of flexible manufacturing system.
  - Write the notes on CIM & JIT.