

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**ME – SEMESTER – I (New)– EXAMINATION – WINTER-2019**

**Subject Code: 3710511**

**Date: 09-01-2020**

**Subject Name: Wireless Sensor Networks**

**Time: 02:30 PM TO 05:00 PM**

**Total Marks: 70**

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Differentiate between sensor networks and Adhoc networks. **07**  
(b) Explain sensor network basic architecture with neat sketch. **07**
- Q.2** (a) Explain how Bluetooth technique useful in Wireless sensor network . **07**  
(b) Enlist design considerations for MAC protocols in wireless sensor networks. **07**
- OR**
- (b) Explain Data frame structure of the IEEE 802.15.4 MAC protocol. **07**
- Q.3** (a) Explain basic wireless sensor node architecture and compare mica2a and micaZ with respect to memory, sensors and protocol. **07**  
(b) Write a Short note on for an operating system for sensor networks. Also compare Contiki and RetOs. **07**
- OR**
- Q.3** (a) Classify various sensor hardware platforms. **07**  
(b) Write a Minimal example of a TinyOS application that turns a LED on and off at every second. **07**
- Q.4** (a) Elaborate on the energy scavenging techniques for sensor nodes. **07**  
(b) Explain the important classes of MAC protocols. **07**
- Q.4** (a) Explain any two data centric routing protocol types for wireless sensor network. **07**  
(b) Write notes on dynamic Energy and power management in WSN. **07**
- Q.5** (a) Differentiate single hope and multi hope network with neat sketch. **07**  
(b) What is importance of localization technique in WSN? Discuss any one technique. **07**
- OR**
- Q.5** (a) Describe challenges for sensor network database. **07**  
(b) Write a Short note on future research directions. **07**

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