

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014

Subject code: 725307

Date: 25-06-2014

Subject Name: Wireless Sensor Networks

Time: 02:30 pm - 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)** Discuss the Enabling Technologies for Wireless Sensor Networks. **07**
(b) Discuss the Routing challenges and design issues in WSN? **07**
- Q.2 (a)** Explain any efficient mechanism for address assignment to nodes **07**
(b) Explain schedule based MAC protocols for WSN? **07**
- OR**
- (b)** What are optimization goals and evaluation metrics with proper illustration? **07**
- Q.3 (a)** Explain any three routing protocols used for sensor Networks with suitable example **07**
(b) What are network design principles? Explain with example? **07**
- OR**
- Q.3 (a)** Discuss the routing strategies of WSN with suitable case study **07**
(b) Explain and compare STEM and S-MAC protocols **07**
- Q.4 (a)** Explain topology control based on relay regions and enclosures with an example **07**
(b) Describe data centric addressing showing different types of messages being used during communication **07**
- OR**
- Q.4 (a)** Explain various mechanisms used by localization algorithms for measuring distance between nodes. **07**
(b) Explain iterative multilateration in multihop environment **07**
- Q.5 (a)** Explain Light weight Time Synchronization algorithm and derive equation to find offset between two clocks **07**
(b) Compare microcontroller, microprocessor, FPGA and ASIC as controller component of sensor node. **07**
- OR**
- Q.5 (a)** Write a TinyOS application to Blink LEDs randomly after each 10 seconds interval on all sensor nodes **07**
(b) Explain Reference Broadcast Synchronization algorithm with an example. **07**
