

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER– V EXAMINATION – WINTER 2015

Subject Code: 2650007

Date: 08/12/ 2015

Subject Name: Wireless Sensor Network Technology

Time: 10.30 AM TO 01.00 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)** (1) Explain Background of Wireless Sensor Network Technology. **03**
(2) Explain Sensor Network Architectural Elements. List down the
Functionality for each of the elements. **04**

- Q.1 (b)** Define the Following: **07**
(1) Single hop vs. Multi hop (2) Reflection
(3) Scattering (4) Diffraction
(5) What is used of 802.11? (6) Microscopic
(7) Define: WSN

- Q.2 (a)** Explain Range of application for Wireless Sensor Network. Give at least Four **07**
applications for Category 2 application of Wireless Sensor network.
(b) Explain Hardware and Software need of WSN with proper figure and all basic **07**
Hardware Subsystem in details.

OR

- (b)** Explain Wireless Sensor Network Taxonomy and Trends in Details. **07**
- Q.3 (a)** List down all the Network Layer Protocol for wireless sensor network. Explain **07**
FLOODING and LEACH in details.
(b) What is MAC Protocol? Differences Between Transport Control Protocol and **07**
Routing Control Protocol.

OR

- Q.3 (a)** What are the principles of WSN Middleware? Explain AMF, DSWare, DFuse **07**
and CLMF Middle wares in detail.
(b) Explain MIDDLEWARE Architecture and principles for Wireless Sensor **07**
Networks.
- Q.4 (a)** Explain SPIN protocol in detail. Also explain SPIN-PP and SPIN-BC. **07**
(b) Discuss Transport Protocol design issues. List down the examples of Transport **07**
Layer Protocols. Also explain problems with Transport Control Protocol.

OR

- Q.4 (a)** What are the design issues with WSN operating systems? List different Operating systems available for WSN. Explain any one of them. **07**
- (b)** List down all the existing Middleware. Explain Impala, MSM, DSS, Em and SensorWare in detail. **07**
- Q.5 (a)** Which are the Performance Metrics that are used for evaluating the Performance of WSN? Explain each of them briefly. **07**
- (b)** List down all the wireless technologies. Explain WLAN and 3GPP in details. **07**

OR

- Q.5 (a)** Explain Performance Modeling of WSNs by taking proper performance metrics and basic models. **07**
- (b)** List all the Operating Systems used with WSNs. **07**
- (i)** Explain Tiny OS **(ii)** Explain MANTIS.
- (ii)** Explain SenOS. **(iv)** Explain EYES OS
