

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER– V EXAMINATION – SUMMER 2018

Subject Code: 2650007

Date: 07/05/ 2018

Subject Name: Wireless Sensor Network (WSN)

Time: 10:30 am to 1:00 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] Define the Following question: **07**
(1) Define: WSN (2) Microscopic
(3) What is used of 802.11? (4) Single hop vs. Multi hop
(5) Full form of : IEEE (6) Diffraction
(7) Zigbee

Q. 1 [B] (1) Explain Sensor Network Architecture Elements. List down the functionality for each of the elements. **04**

(2) Explain Background of Wireless Sensor Network Technology. **03**

Q. 2 [A] Explain Range of application for Wireless Sensor Network. Give at least five applications for Category 1 application of Wireless Sensor network. **07**

Q. 2 [B] Explain Wireless Sensor Network Taxonomy and Trends in Details. **07**

OR

Q. 2 [B] Explain Hardware and Software need of WSN with proper figure and all basic hardware Subsystem in details. **07**

Q. 3 [A] List down all the wireless technologies. Explain WLAN and 3GPP in details. **07**

Q. 3 [B] Explain WSN Design Issues for MAC protocols, Routing protocols and Transport protocols in detail. **07**

OR

Q. 3 [A] Explain SPIN protocol in detail. Also explain SPIN-PP and SPIN-BC. **07**

Q. 3 [B] List down all the Network Layer Protocol for wireless sensor network. Explain FLOODING and LEACH in details. **07**

Q. 4 [A] Explain MIDDLEWARE Architecture and principles for Wireless Sensor networks. **07**

Q. 4 [B] List down all the existing Middleware. Explain Impala, MSM, DSS, Em and Sensor Ware in detail **07**

OR

Q. 4 [A] Discuss Transport Protocol design issues. List down the examples of Transport Layer Protocols. Also explain problems with Transport Control Protocol. **07**

Q. 4 [B] What are the principles of WSN Middleware? Explain AMF, DSWare, DFuse and CLMF Middle wares in detail **07**

Q. 5 [A] List all the Operating Systems used with WSNs. **07**

- (i) Explain Tiny OS. (ii) Explain MANTIS.
- (iii) Explain SenOS. (iv) Explain EYES OS

Q. 5 [B] What are the design issues with network management? Taking example of MANNA, explain network management architecture. **07**

OR

Q. 5 [A] What are the design issues with WSN operating systems? List different Operating systems available for WSN. Explain any one of them. **07**

Q. 5 [B] which are the Performance Metrics that are used for evaluating the Performance of WSN? Explain each of them briefly. **07**
