

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

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

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA - SEMESTER– V EXAMINATION – SUMMER 2016**

**Subject Code: 2650007**

**Date: 11/05/ 2016**

**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] Explain Sensor Network Architectural Elements. List down the Functionality for each of the elements. **07**

[B] Differentiate between C1WSN and C2WSN in all Application Details. **07**

**Q. 2** [A] Define the Following: **07**

- |                              |                         |
|------------------------------|-------------------------|
| (1) Reflection               | (5) Scattering          |
| (2) Microscopic              | (6) Full Form of : DSSS |
| (3) Full Form of : IEEE      | (7) Define : WSN        |
| (4) Single hop vs. Multi hop |                         |

[B] List down all the Network Layer Protocol for Wireless Sensor Network. **07**

Explain FLOODING and LEACH in details.

**OR**

[B] Explain Hardware and Software need of WSN with proper figure, and **07**

All basic Hardware Subsystem in details.

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

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

**OR**

**Q. 3** [A] Explain MIDDLEWARE Architecture and principles for Wireless Sensor Networks. **07**

[B] List down all the Medium Access Control Protocol for wireless sensor Network. Explain any three in detail. **07**

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

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

**OR**

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

**[B]** List all the Operating Systems used with WSNs. **07**

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

**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**

**[B]** Explain Performance Modeling of WSNs by taking proper performance metrics And basic models. **07**

**OR**

**Q. 5 [A]** Discuss Transport Protocol design issues. List down the examples of Transport Layer Protocols. Also explain problems with Transport Control Protocol. **07**

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

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