

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.C.A.- SEMESTER – V • EXAMINATION – WINTER 2012

Subject code: 650007

Date: 28-12-2012

Subject Name: Wireless Sensor Network (WSN)

Time: 10:30 am – 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)** Explain Sensor Network Architectural Elements. List down the functionality for each of the elements. **07**
- (b)** Explain range of applications for Wireless Sensor Networks. Give at least 3 application for Category 2 applications of Wireless Sensor Network. **07**
- Q.2 (a)** Explain current Wireless Network Trends by taking proper examples. **07**
- (b)** List down all the Medium Access Control Protocol for wireless sensor network. Explain any three in detail. **07**
- OR**
- (b)** List down all the Network Layer Protocol for wireless sensor network. Explain any FLOODING & LEACH in detail. **07**
- Q.3 (a)** List down the similarity and difference between Wireless Sensor Network and Database. Explain Sensor database system. **07**
- (b)** (1) Differentiate between Schedule-Based Protocols and Random Access- Based Protocols. **02**
- (2) What are the Routing Challenges and Design Issues in Wireless Sensor Networks. **05**
- OR**
- Q.3 (a)** Discuss Transport Protocol design issues. List down the examples of Transport Layer Protocols. Also explain problems with Transport Control Protocol. **07**
- (b)** Explain CODA with reference to Congestion Detection and Avoidance by Transport Control Protocol. **07**
- Q.4 (a)** What are the principles of WSN Middleware? Explain Middleware Architecture with all data related functions. **07**
- (b)** List down all the existing Middleware. Explain MiLAN and IrisNet in detail. **07**
- OR**
- Q.4 (a)** What are the principles of WSN Middleware? Explain AMF, DSWare and CLMF Middle wares in detail. **07**
- (b)** List down all the existing Middleware. Explain Impala, DFuse, DSS and Sensor Ware in detail **07**
- Q.5 (a)** Explain the Management Architecture: MANNA. Also Explain Naming and Localization Issues Related to Network Management. **07**
- (b)** Explain Performance Modeling of WSNs by taking proper performance metrics and basic models. **07**
- OR**
- Q.5 (a)** Explain WSN Design Issues for MAC protocols, Routing protocols and Transport protocols in detail. **07**
- (b)** Explain Operating System Design Issues for WSN by taking any two examples of Operating Systems. **07**
