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**

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