GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–VII EXAMINATION – WINTER 2025

Subject Code:3171106   **Date:01-12-2025**

Subject Name:Wireless Sensor Networks

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

Q.1	**(a)**	Discuss the potential applications of Wireless Sensor Networks (WSN).	**03**
	(b)	With neat figure explain the working components of WSN.	**04**
	(c)	Discuss about the enabling technologies to build up WSN.	**07**
Q.2	**(a)**	Why is multi hop wireless communication required for WSN?	**03**
	(b)	Compare Mobile Ad-hoc Networks (MANETs) and WSN.	**04**
	(c)	Discuss Issues and challenges in wireless sensor networks.	**07**
		OR	
	(c)	Explain how WSNs are deployed for various applications.	**07**
Q.3	**(a)**	Differentiate WSN routing and Ad-hoc routing.	**03**
	(b)	Give the important classes of MAC protocols in WSN.	**04**
	(c)	Write short note on B-MAC protocol.	**07**
		OR	
Q.3	**(a)**	Differentiate between contention based and schedule based routing protocols.	**03**
	(b)	Define the terms: Data gathering and data fusion.	**04**
	(c)	Explain the design approaches and performance of S-MAC protocol.	**07**
Q.4	**(a)**	What is role of dissemination protocol in WSNs.	**03**
	(b)	Explain the concept of reverse path forwarding with example.	**04**
	(c)	Discuss in detail: the design principles for WSN.	**07**
		OR	
Q.4	**(a)**	List and explain challenges of dissemination protocols in WSNs.	**03**
	(b)	List and define various sensors used in WSNs.	**04**
	(c)	Explain real-time traffic support mechanism in WSN.	**07**
Q.5	**(a)**	What do you mean by single-node architecture in WSN?	**03**
	(b)	Briefly explain WSN to Internet Communication.	**04**
	(c)	With the help of block diagram explain the IMote Node Architecture.	**07**
		OR	
Q.5	**(a)**	What is the Need for gateway in WSN?	**03**
	(b)	Draw and explain block diagram of XYZ Node Architecture.	**04**
	(c)	Write short note on the Hogthrob Node Architecture.	**07**

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