

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VII EXAMINATION – SUMMER 2026

Subject Code:3171106

Date:08-06-2026

Subject Name: Wireless Sensor Networks

Time: 02:30 PM TO 05:00 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) What is a Wireless Sensor Network (WSN)? **03**
(b) Specify in brief the applications of Wireless Sensor Network in Environment. **04**
(c) What do you mean by enabling technologies? Discuss enabling technologies for WSNs. **07**
- Q.2** (a) Differentiate between single-hop and multi-hop WSNs. **03**
(b) Write advantages and disadvantages of WSN. **04**
(c) Write short note on design issues and challenges in WSNs. **07**
- OR**
- (c) Do you think WSNs can be useful in smart city projects? Explain using few example applications. **07**
- Q.3** (a) What is a Mobile Ad-hoc Network (MANETs)? **03**
(b) Compare WSNs and MANETs. **04**
(c) Explain IEEE 802.15.4 standard. **07**
- OR**
- Q.3** (a) Explain how routing in WSNs different from routing in traditional networks. **03**
(b) Briefly explain responsibilities of routing protocols in WSNs. **04**
(c) What do you understand by MAC protocol? Explain the classification of MAC protocol in detail. **07**
- Q.4** (a) What do you mean by data dissemination? **03**
(b) Briefly explain responsibilities of MAC protocols in WSNs. **04**
(c) Write short note on Multiple Access with Collision Avoidance (MACA) protocol. **07**
- OR**
- Q.4** (a) What do you mean by real-time traffic support? Explain using example. **03**
(b) Explain data fusion. Why it is important? **04**
(c) Explain working of Multiple Access with Collision Avoidance for Wireless (MACAW) protocol using suitable example. **07**
- Q.5** (a) What are the design principles of WSNs? **03**
(b) Comment on quality of WSNs. List quality of service challenges in WSNs. **04**
(c) Write short note on the Hightrob Node Architecture. **07**
- OR**
- Q.5** (a) List and explain (any one) types of sensors used in WSNs. **03**
(b) Explain Gateway concept. What is need of Gateway concept? **04**
(c) Write short note on the IMote Node Architecture. **07**
