# GUJARAT TECHNOLOGICAL UNIVERSITY
## BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2020

**Subject Code:2174103**                                     **Date:01/02/2021**

**Subject Name:Wireless Sensors Networks for Robotics**

**Time:10:30 AM TO 12:30 PM**                     **Total Marks: 56**

**Instructions:**
1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

|  |  |  | MARKS |
|---|---|---|---|
| Q.1 | (a) | Explain applications of WSN. | 03 |
|  | (b) | Explain Single hop and multi hop networks. | 04 |
|  | (c) | Explain sensor node hardware architecture with diagram. | 07 |
|  |  |  |  |
| Q.2 | (a) | Define: Source, Sink and Sensors. | 03 |
|  | (b) | Explain types of mobility. | 04 |
|  | (c) | Explain RTS/CTS handshake with figure. | 07 |
|  |  |  |  |
| Q.3 | (a) | Define : Path loss , Attenuation , Mobility | 03 |
|  | (b) | What is need of Gateway in WSN? | 04 |
|  | (c) | Explain Dynamic Source Routing protocol. | 07 |
|  |  |  |  |
| Q.4 | (a) | What is Reflection, Diffraction and scattering? | 03 |
|  | (b) | Explain Ad hoc On Demand Distance Vector routing protocol in brief. | 04 |
|  | (c) | Explain : Exposed terminal problem & Hidden terminal Problem | 07 |
|  |  |  |  |
| Q.5 | (a) | What is logical time and physical time in WSN? | 03 |
|  | (b) | Explain : TinyOS | 04 |
|  | (c) | What is S-MAC? Explain in detail | 07 |
|  |  |  |  |
| Q.6 | (a) | What is clustering? Why there is a need of clustering? | 03 |
|  | (b) | What is Proactive and Reactive routing protocols? Give one example of each. | 04 |
|  | (c) | Write & explain Properties of localization and positioning procedures. | 07 |
|  |  |  |  |
| Q.7 | (a) | What is flooding? | 03 |
|  | (b) | What are the categories of sensor node hardware? Explain in brief. | 04 |
|  | (c) | What is mediation device protocol? Explain. | 07 |
|  |  |  |  |
| Q.8 | (a) | Explain: Technique single hop localization RADAR. | 03 |
|  | (b) | What is flat and Hierarchical network? | 04 |
|  | (c) | Draw MICA mote architecture and explain. | 07 |

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