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**505103**

**Mar. 2022**

**M.Tech. (ECE) I SEMESTER**

**Wireless Sensor Networks (MECE-101)**

Time : 90 Minutes]

[Max. Marks : 25

*Instructions :*

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

**PART-A**

1. (a) Write the classification of routing protocols. (1)
- (b) Explain about node-level simulators. (1)
- (c) What do you mean by gateway concepts? (1)
- (d) What are the characteristic requirements of Wireless sensor network? (1)
- (e) Differentiate between active and passive sensors. (1)
- (f) Discuss the few programming challenges in sensor networks. (1)

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- (g) Enlist any 2 merits of M-ary modulation technique for WSN applications. (1)
- (h) Why is multi-hop wireless communication required for WSN? (1)
- (i) Discuss about the enabling technologies to build up WSN. (1)
- (j) Write about the directed diffusion. (1)

**PART-B**

- 2. (a) Define Wireless sensor networks and mention its advantages. Draw the architecture of a Sensor Network. (3)
- (b) Briefly explain the Low-Energy adaptive clustering hierarchy. (2)
- 3. (a) What is a WSN Simulator? What are the capabilities of WSN simulator? (2)
- (b) What are the key features of Qualnet and Cooja? (3)
- 4. (a) Design the approaches and performance of S-MAC protocol. (5)
- (b) Discuss about Ultra-wideband radio propagation. (5)

- 5. (a) Discuss the approaches to data storage and Querying in WSN. (3)
- (b) What are the challenges in selecting a programming tool? (2)
- 6. (a) Write about the enabling technologies for wireless sensor networks. (2)
- (b) What are the design issues and challenges in security provisioning of WSN? (3)