Hall Ticket No | | | | | | | | | | | Question Paper Code: BESB14

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech II Semester End Examinations (Regular) - May, 2019

Regulation: IARE–R18

EMBEDDED WIRELESS SENSOR NETWORK

Time: 3 Hours **(ES)** **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT – I

1. (a) Discuss the application of Wireless Sensor Networks in health care and precision agriculture. **[7M]**

   (b) List all the energy consuming sources in a sensor node and model the energy consumption of a radio transceiver during transmission. **[7M]**

2. (a) Illustrate various programming models suitable for WSN operating systems. **[7M]**

   (b) Sketch a typical sensor node and explain about the hardware components of a sensor node. **[7M]**

UNIT – II

3. (a) Describe the optimization goals of a WSN and figures of merit in detail. **[7M]**

   (b) Describe the advantage of multi-hop communication over single-hop network in terms of energy. **[7M]**

4. (a) Compare between data-centric networking and Identity centric networking. **[7M]**

   (b) Realize the implementation of data-centric networking by the Publish/Subscribe approach. **[7M]**

UNIT – III

5. (a) Discuss the algorithms suitable for collision avoidance in WSN Applications. **[7M]**

   (b) Elaborate the Scaled Traditional approach of programming the sensor networks. **[7M]**

6. (a) Develop a state diagram for the Carrier Sense Multiple Access protocol with collision Detection. **[7M]**

   (b) What is the role of timer interface in wireless sensor applications? **[7M]**

UNIT – IV

7. (a) What aspects to be considered in evaluating the suitability of a programming abstraction for Cooperating objects. **[7M]**

   (b) List the relevant programming abstractions suitable for cooperating objects based sensor networks and explain any one programming approach. **[7M]**

8. (a) Compare and contrast Data-centric and service-centric approaches in the applications of Cooperating objects. **[7M]**

   (b) Sketch and explain the general architecture related to cooperation among nodes in a sensor network. **[7M]**

UNIT – V

9. (a) Address the key issues associated with the mobile wireless sensor networks. **[7M]**

   (b) Discuss about the Environmental parameters to be monitored in precision agriculture using wireless sensor networks. **[7M]**

10. (a) Discuss the potential benefits provided by the node mobility in a WSN. **[7M]**

    (b) Discuss about autonomous mobile robotic system for surveillance of indoor environments. **[7M]**

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