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Question Paper Code : 13790

M.E. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Elective

Computer Science and Engineering

NE 7005 – PROTOCOLS AND ARCHITECTURE FOR WIRELESS SENSOR NETWORKS

(Common to M.E. Computer Science and Engineering (With Specialization in Networks))

(Regulation 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Write about any two challenges faced by wireless sensor networks.

2.   Explain the need for usage of sensors in computer networks.

3.   With a schematic, write short notes on single node architecture.

4.   Brief on the sensor node hardware with respect to a wireless network.

5.   Write short notes on node level simulation.

6.   Explain about the necessary steps that must be considered before designing a router for a wireless network.

7.   Explain the working of IEEE 802.154 standard.

8.   What are the important functions of B–MAC protocol?

9.   Write short notes about any two recent enabling technologies as applicable for a wireless sensor network.

10. Write about the important features the operating system used for wireless networks.

PART B — (5 × 16 = 80 marks)

11. (a) List and explain six applications of wireless sensor networks.

Or

(b) Explain how the interrupts are efficiently handled by spec. and mica nodes by their specialised hardware and software support features.

12. (a) (i) Explain in detail about the deployment and configuration capabilities of a wireless sensor network. (8)

   (ii) How does the security system for a wireless sensor network authenticate data communication and provide privacy? (8)

Or

(b) (i) Explain the key differences between security and network monitoring. (6)

   (ii) Explain about the history and the applications of any two types of sensors network technologies. (10)

13. (a) Explain in detail, the architectural factors that decide the performance criteria of routing protocols of WSNs.

Or

(b) Explain the principles of a sensor management system.

14. (a) Explain in detail, about the features of compression technologies and data aggregation techniques.

Or

(b) Describe five design issues challenging the selection of routing protocols for their successful implementation.

15. (a) (i) Explain the various challenges that was ahead for the programming tools of a WSN. (8)

   (ii) Explain the necessary expectations of software and hardware tools that work in a WSN platform. (8)

Or

(b) (i) Explain how a WSN may be used for monitoring ECG? (6)

   (ii) Explain the process of wireless ECG monitoring using Zigbee? (10)