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**Question Paper Code: 49406**

B.E./B.Tech. DEGREE EXAMINATION, NOV 2018

Elective

Electronics and Communication Engineering

14UEC906 - WIRELESS SENSOR NETWORKS

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

1. The greatest advantage of Sensor network is its The device which converts physical phenomenon into electrical signal is known as CO1- R  
(a) Transducer                      (b) ADC                      (c) Sensor network                      (d) All of the above
2. A Sensor network is designed to perform a \_\_\_\_\_ high level information processing tasks CO1- R  
(a) detection                      (b) tracking                      (c) classification                      (d) All the above
3. In the design of Wireless sensor network, which device is suitable for testing CO2- R  
(a) Microcontroller                      (b) DSP                      (c) FPGA                      (d) ASIC
4. \_\_\_\_\_ sub layer manages access to the physical network medium and its fundamental goal to reduce or avoid packet collisions in the medium CO2- R  
(a) MAC                      (b) LLC                      (c) PLCP                      (d) None of the above
5. Examples of data attributes include \_\_\_\_\_ CO3- R  
(a) node's location                      (b) node's type sensors  
(c) certain range of values in a certain type of sensed data                      (d) all the above

6. The latency in channel can be decomposed into the following component CO3 -R
- (a) Send time                      (b) Access time                      (c) Propagation time                      (d) Receive time
7. \_\_\_\_\_ technique is used to estimate the RF signal strength at the receiver CO4- R
- (a) RSS                      (b) RBS                      (c) RSB                      (d)None of the above
8. Which sensor node hardware has high processing capability CO4- R
- (a) augmented general purpose nodes                      (b) dedicated embedded sensor nodes
- (c) SOC nodes                      (d) all the above
9. Example of system –on chip node is ----- CO5 -R
- (a) PDA                      (b) PASTA                      (c) UCLA                      (d) Win CE
10. A node level simulator has the following components CO5- R
- (a) Sensor node model                      (b) Communication model
- (c) Physical environment model                      (d) Statistics &Visualization

PART – B (5 x 2= 10Marks)

11. Why multihop wireless communication is required for WSN? CO1 -R
12. What is Receiver Sensitivity? CO2 -R
13. What is geographic addressing? CO3- R
14. What are the advantages of clustering? CO4- R
15. Write short notes on system on –chip nodes. CO5 -R

PART – C (5 x 16= 80Marks)

16. (a) Discuss the potential applications of WSN. CO1- U                      (16)

Or

- (b) (i) Discuss the characteristic requirements of WSN CO1- U (8)
- (ii) Explain the innovative mechanisms to realize the characteristic requirements of WSN. CO1- U (8)
17. (a) Discuss about the energy consumption of the different components of a sensor node. CO2 -U (16)
- Or
- (b) Write in detail about the Gateway concept in WSN. CO2- U (16)
18. (a) Explain the design approaches and performance of S-MAC protocol. CO3 -U (16)
- Or
- (b) Write in detail about the IEEE 802.15.4 standard with suitable diagrams CO3 -U (16)
19. (a) Discuss the basics of Range –based localization algorithm for WSN CO4- U (16)
- Or
- (b) Discuss in details any two localization and positioning algorithms CO4- U (16)
20. (a) Write the program for the interface definition of the Timer component in nesC. CO5 -U (16)
- Or
- (b) Explain the challenges for sensor network platforms CO5 -U (16)

