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Question Paper Code : 91375

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Seventh/Eighth Semester

Computer Science and Engineering

CS 6003 – AD HOC AND SENSOR NETWORKS

(Common to Electronics and Communication Engineering/Biomedical Engineering/Electronics and Communication Engineering/Information Technology)

(Regulations 2013)

(Also Common to PTCS 6003 – Ad hoc and Sensor Networks for B.E. Part-Time – Computer Science and Engineering – Sixth Semester – Electronics and Communication Engineering – Seventh Semester – Regulations 2014)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Define attenuation.
2. Distinguish between shadowing and reflection of signal propagation.
3. Abbreviate FAMA and write a brief note.
4. What are the mechanisms used in the MAC layer ?
5. What is the need for power management in Ad hoc network ?
6. Why does TCP not work well in Ad hoc network ?
7. Draw the diagram for sensor node hardware components.
8. List the features of 802.15 standards.
9. Define Delay and Jitter.
10. Name the three types of control messages used in OLSR.

PART – B

(5×13=65 Marks)

11. a) i) What are the characteristics and features of Ad hoc networks ? (7)
ii) Differentiate between cellular network and Ad hoc network (any 6). (6)

(OR)

- b) How the path loss and Fading affect in Wireless Channel ? Elaborate. (13)



12. a) Classify the MAC protocols and explain the contention based protocols with scheduling and reservation in detail. (13)
- (OR)
- b) Explain the qualities of service metrics that are used to evaluate the performance of the network. (13)
13. a) An Ad hoc network has 7 nodes namely A, B, C, D, E, F and G and one node can reach other node by one or more hops. The node named B which is nearer to node D is now moved near to node G. Using DSDV show the topology and routing table of node B before and after movement. Give the final routing table of node B. (13)
- (OR)
- b) How is routing table constructed in fisheye state routing protocol? Explain in detail. (13)
14. a) Explain in detail about MAC protocols of Wireless Sensor Network. (13)
- (OR)
- b) Discuss in detail about IEEE 802.15.4 protocol stack. (13)
15. a) What is meant by OLSR and explain about OLSR routing protocol with an example. (13)
- (OR)
- b) Discuss in detail on sensor network absolute and relative localization. (13)

PART - C

(1×15=15 Marks)

16. a) TCP has become standard transport protocol for computer communication. This allows slow start increase of transmission rate when doing cold start and then adjust rate when a threshold is crossed. Why do you have several variations of TCP and what are their relative advantages and disadvantages? Are any of these variation suited for Wireless Ad hoc networks? How does the hidden terminal problem affect TCP over multihop transmission? (15)
- (OR)
- b) 500 sensors are randomly deployed in a rectangular area of 40×40 . Draw a Varonoi diagram. Apply the Delaunay triangulation to determine the maximum cost path between node 250 to 287 using graph search traversal method. Derive the analytical model between the densities of the nodes, coverage and sleep cycle. (Assume appropriate parameters if required as commonly used in literature). (15)