KUMARAGURU
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Register Number:……………………..

B.TECH DEGREE EXAMINATIONS: MAY 2015

(Regulation 2009)

Seventh Semester

INFORMATION TECHNOLOGY

ITY118: AD HOC & Sensor Networks

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The change/shift in the frequency of the received signal when the transmitter and the receiver are mobile with respect to each other is called as ----------------
   a) Adjacent channel interference
   b) Co-channel interference
   c) Doppler shift
   d) Nyquist's rate

2. Which technology is called as intersection between cellular and cordless telephony?
   a) Wireless local loop
   b) Time division multiplexing
   c) Wireless ATM
   d) IEEE 802.16

3. MACA, MACAW, FAMA and DBTMA protocols are solutions to avoid _____ problems
   a) Bandwidth constraint
   b) Hidden and exposed terminal problem
   c) mobility
   d) Resource constraints

4. What should be the awareness of routing protocols that select paths so as to conserve power?
   a) States of batteries
   b) Noise level in channel
   c) Bandwidth available
   d) Noise margin

5. _____ is a mechanism to guarantee that the sender of a message cannot later deny having sent the message and that the recipient cannot deny having received the message.
   a) Confidentiality
   b) integrity
   c) Availability
   d) Non-repudiation

6. Which scheme uses a central arbitrator to create and distribute keys among all participants?
   a) Key pre distribution
   b) Key transport
   c) Key arbitration
   d) Key agreement

7. The energy required for the CPU operation depends largely on the _____
   a) Clock frequency
   b) Memory capacity
   c) Bandwidth
   d) RAM size

8. Which module consumes a major portion of the energy in ad hoc wireless networks?

   a) Processor module
   b) Battery module
   c) i/o module
   d) Communication module

9. Which is the process by which queries or data are routed via the sensor network to the BS?

   a) Indoor localization
   b) Data dissemination
   c) Flooding
   d) gossiping

10. _____ protocols in sensor networks must create a network infrastructure to establish communication links among the thousands of randomly scattered sensors.

    a) MAC protocols
    b) TCP protocols
    c) UDP protocols
    d) IP protocols

PART – B (10 X 2 = 20)

11. What are the three propagation mechanisms for radio waves? Write a short note about each.

12. What are the modifications done in MACAW over MACA?

13. Mention the categories based on which, the routing protocols were classified.

14. How does the WRP protocol maintains and update the network route information.

15. Differentiate between the symmetric and asymmetric key algorithms.

16. List the requirements of a secure routing protocol for ad hoc wireless networks.

17. What are the main factors considered while designing a battery technology?

18. What do you mean by power saving modes in an ad hoc wireless network?

19. What are the major differences between ad hoc wireless networks and sensor networks?

20. Define data diffusion.

PART C (5 x 14 = 70 Marks)

21. a)   Discuss the design issues, goals and classification of MAC protocols for wireless ad hoc Networks. Explain any one classification protocol in detail.

OR

    b) (i)   Who are the main beneficiaries of HIPERACCESS? Explain the protocol stack of   (8)
            HIPERACCESS Standard.

       (ii)   Analyze the characteristics of the wireless channel.   (6)

22. a) (i)   How is route established and maintained in DSDV protocol? Illustrate with corresponding   (7)
            topology graph and table.

	(ii)	How are the routing zone and path finding performed in Zone Routing Protocol? Illustrate.	(7)

OR

b)		Bring out the multicast AODV protocol and On Demand multicast routing protocol in detail with neat sketches.

23. a) Classify the different types of security attacks possible in ad hoc wireless networks. Bring out the attacks pertaining to each layer of the protocol stack.

OR

b)	(i)	Explain the Key encrypting key (KEK) method.	(6)
	(ii)	Investigate about one of the security aware routing protocol proposed for ad hoc wireless network.	(8)

24.
a)	(i)	Explain the need for energy management in ad hoc wireless network in detail.	(6)
	(ii)	Give any one solution proposed to calculate the optimum transmission range in transmission power management schemes.	(8)

OR

b)		Analyze how system power management can be used to increase the life time of an ad Hoc Network.

25.
a)	(i)	Give an account of the types of sensor network architecture in detail.	(8)
	(ii)	Explain how data gathering is done in WSN.	(6)

OR

b)	(i)	Discuss about the significance of the quality of a sensor network.	(7)
	(ii)	Summarize the significance of location discovery in sensor networks.	(7)