KUMARAGURU college of technology
character is life

Register Number:……

Ph.D COURSE WORK EXAMINATIONS: JUNE 2017

(Regulation 2015)

COMPUTER SCIENCE AND ENGINEERING

P15CSTE09 : Adhoc and Sensor Networks

COURSE OUTCOMES

CO1: Summarize the issues and classifications of adhoc and sensor networks

CO2: Explain various unicast and multicast routing protocols.

CO3: Illustrate the security issues in adhoc networks and explain solutions for it.

CO4: Explain about power management and it schemes.

CO5: Summarize the sensor routing, localizations and QoS issues and solutions.

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Which the following sequence is used by MACA protocol. CO1 [K_2]

   1.Sender sends RTS packet

   2.Sender sends data packet

   3. Receiver sends CTS packets.

   4.Receiver sends ACK packet

   a) 1,2,3,4 b) 1,3,2,4

   c) 1,2,4,3 d) 1,3,4,2

2. Which of the following are contention based MAC protocols with reservations CO1 [K_2]

   a) Collision Avoidance Time Allocation Protocol b) Distributed Packet Reservation Multiple Access Protocol

   c) Distributed Priority Scheduling d) Distributed Wireless Ordering Protocol

3. The metric that is not used by power aware routing protocol is CO2 [K_2]

   a) Minimal energy consumption per packet b) Minimize variance in node power levels

   c) Minimize network connectivity d) Minimize number of nodes

4. Matching type item with multiple choice code CO1 [K_2]

List I	List II
A. MACAW	i. Contention based protocol with scheduling mechanism

B. HRMA	ii. Sender initiated contention based protocol mechanism
C. DWOP	iii. Receiver initiated contention based protocol mechanism
D. MARCH	iv. Contention based protocol with reservation mechanism

a) i,ii,iv,iii
b) i,iii,iv,ii
c) ii,iii,i,iv
d) ii,iv,i,iii

5. Which of the following is a reactive routing protocol CO2 [K_2]
   a) wireless routing protocol
   b) destination sequenced distance-vector routing protocol
   c) cluster-head gateway switch routing protocol
   d) Dynamic source routing protocol

6. Which of the following are examples for application–dependent multicast routing protocols CO2 [K_2]
   a) Role-based multicast
   b) Content-based multicasting
   c) Multicast priority scheduling protocol
   d) Wireless ad hoc real-time multicasting

7. Assertion (A): Multicast Zone Routing Protocol reduces control overhead CO2 [K_3]
   Reason (R): Multicast Zone Routing Protocol runs over Zone Routing Protocol
   a) Both A and R are individually true and R is the correct explanation of A
   b) Both A and R are individually true but R is not the correct explanation of A
   c) A is true but R is false
   d) A is false but R is true

8. Which of the following algorithm is used to calculate the CPU clock cycle time? CO4 [K_2]
   (i) OPT Algorithm
   (ii) FUTURE algorithm
   (iii)PAST Algorithm
   (iv)Optimal-optimal algorithm
   a) (i) only
   b) (i) ,(ii) and (iii)
   c) (i),(ii),(iii),(iv)
   d) (i) and (ii)

9. Consider the following statements. CO1 [K_3]
   a. Multichannel sender initiated protocols divides the available bandwidth into multiple channels.
   b. In the receiver-initiated protocols, the packet transmissions are initiated by the sender node.
   c. Synchronous protocols require global synchronization
   d. MAC protocols based on directional antennas increases signal interferences.
   Which of these statements are correct?

a) a,b b) c,d

c) a,c d) b,c

10. Which of the following is not WSN protocol? CO5 [K_2]

a) LEACH b) Gossiping

c) PEGASIS d) CSMA/CD

Answer ALL Questions:-

PART B (10 x 2 = 20 Marks)

11.	Explain any four differences between cellular network and adhoc network?	CO1	[K_3]
12.	List the significance of synchronization in designing a MAC protocol.	CO1	[K_3]
13.	Is a table-driven routing protocol suitable for high-mobility environments? Justify	CO2	[K_3]
14.	Compare flat and hierarchical routing.	CO2	[K_2]
15.	List the three major classifications of multicast routing protocols.	CO2	[K_2]
16.	Why is ABM not efficient? How can its efficiency be increased?	CO2	[K_3]
17.	Which battery is being commonly used for portable mobile nodes such as laptops?	CO4	[K_3]
18.	How does jamming attack work?	CO3	[K_3]
19.	What do you mean by localization in WSN?	CO5	[K_2]
20.	List the applications of WSN.	CO5	[K_2]

Answer ALL Questions:-

PART C (6 x 5 = 30 Marks)

21.	Analyze the issues in designing MAC protocol for wireless networks.	CO1	[K_3]
22.	Compare the pros and cons of using scheduling based MAC protocols over reservation based MAC protocols.	CO1	[K_2]
23.	What is hybrid routing protocol? Briefly explain any one hybrid routing protocol.	CO2	[K_2]
24.	Explain briefly about associativity based multicast routing protocol	CO2	[K_2]
25.	Discuss in detail about the security attacks that cannot strictly be associated with any specific layer in the network protocol stack.	CO3	[K_2]
26.	Explain in detail about the MAC protocol for WSN.	CO5	[K_2]

Answer ANY FOUR Questions:-

PART D (4 x 10 = 40 Marks)

27.	What is DSDV? How the DSDV protocol working and give advantages and disadvantages?		CO2	[K_2]
28.	(i) Give brief description about the attacks pertaining to the network layer in the network protocol stack.	(5)	CO3	[K_2]
	(ii) Discuss in detail about the security attacks that cannot strictly be associated with any specific layer in the network protocol stack.	(5)		
29.	(i) Outline the need for energy management in ad hoc networks. .	(4)	CO4	[K_3]
	(ii) Explain the various transmission power management schemes.	(6)		[K_3]
30	Explain in detail about QoS in sensor networks.		CO5	[K_3]
31.	Explain how data gathering is done in WSN.		CO5	[K_2]

****