Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem Examination Dec-2023

CS3EL05 Ad-hoc Networks

Programme: B.Tech. Branch/Specialisation: CSE All

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. Military vehicles on a battlefield with no existing infrastructure will deploy _____ network. **1**

(a) Cellular Network
(b) Mobile Adhoc Networks
(c) LAN
(d) Wifi

ii. Which of the following is not advantage of Adhoc networks? **1**

(a) No wiring (b) Mobility
(c) Energy constraint (d) Lower initial cost

iii. IEEE project 802 divides the data link layer into an upper _____ sublayer and a lower _____ sublayer. **1**

(a) MAC, CSMA (b) HDLC, PDU
(c) WLAN, WAN (d) LLC, MAC

iv. The CSMA/CA is used to avoid: **1**

(a) Errors (b) Multiple access
(c) Collision (d) Point to point access

v. Which of the following is/are table driven routing protocols? **1**

I. The destination sequenced distance-vector routing protocol (DSDV)
II. Wireless routing protocol (WRP)
III. Source-tree adaptive routing protocol (STAR)

(a) I (b) I and III
(c) I and III (d) All of these

P.T.O.

vi. Which of the following is not property of AODV? **1**
(a) Route discovery on demand
(b) Periodic route discovery
(c) Does not maintain route for every node
(d) Uses Routing table

vii. "When there is a lack of a central point of control." Which type of Wireless network threat would you classify this under? **1**
(a) Man in the middle attack (b) Identity Theft
(c) Ad Hoc Networks (d) Non-Traditional Networks

viii. WPA stands for – **1**
(a) Wired Protected Access (b) Wireless Protected Access
(c) Wireless Personal Access (d) Wired Personal Access

ix. Which of the following is not application of Wireless Sensor Networks? **1**
(a) Air pollution monitoring (b) Forest fires detection
(c) Greenhouse monitoring (d) None of these

x. Integrity of message in network transit can be implemented using: **1**
(a) Timestamp (b) Encryption
(c) Credential (d) Message digest

Q.2 i. What do you understand by Adhoc Networks? **2**
ii. Differentiate Adhoc Networks with Cellular Networks. **3**
iii. Think of four scenarios where wireless networks can replace wired networks in order to improve the efficiency of people at their workplace. Briefly describe how in each case a wireless network will fit the role better than a wired network. **5**
OR iv. Explain applications of Adhoc Networks. **5**

Q.3 i. What are the advantages of reservation-based MAC protocols over contention-based MAC protocols? **2**
ii. Discuss issues in designing a MAC protocol for Adhoc Wireless Networks. **8**
OR iii. Describe any one of contention based protocol with reservation mechanism. **8**

Q.4 i. Is hop length always the best metric for choosing paths? In an ad hoc network with a number of nodes, each differing in mobility, load generation characteristics, interference level, etc., what other metrics are possible? **3**
ii. Classify Routing protocols for Adhoc Networks. **7**
OR iii. Illustrate destination sequenced distance-vector routing protocol (DSDV). Write various disadvantages of DSDV. **7**

Q.5 i. Why Does TCP Not Perform Well in Ad Hoc Wireless Networks? **4**
ii. List and explain network layer attacks. **6**
OR iii. Discuss issues and challenges involved in provisioning security in ad hoc wireless networks. **6**

Q.6 Attempt any two:
i. Give introduction of Wireless Sensor Network. **5**
ii. Explain secure Adhoc routing protocols. **5**
iii. Compare Wireless Sensor Network with Adhoc Networks. **5**

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Marking of Scheme
Ad-hoc Networks (T) - CS3EL05 (T)

Q.1	i)	(b) Mobile Adhoc Network		**1**
	ii)	(c) No Energy constraint		**1**
	iii)	(d) LLC, MAC		**1**
	iv)	(c) Collision		**1**
	v)	(d) All of above		**1**
	vi)	(b) Periodic route discovery		**1**
	vii)	(c) Ad Hoc Networks		**1**
	viii)	(b) Wireless Protected Access		**1**
	ix)	(d) None of above		**1**
	x)	(d) Message digest		**1**
Q.2	i.	Define Adhoc Networks	(As per exaplanation)	**2**
	ii.	Adhoc Networks with Cellular Networks	(1.5*Each)	**3**
	iii.	Think of four scenarios	(3 Marks)	**5**
		Case a wireless network.	(2 Marks)	
OR	iv.	Applications of Adhoc Networks	(1 Mark *5)	**5**
Q.3	i.	Advantages of reservation-based	(1 Mark*2)	**2**
	ii.	Issues in designing a MAC protocol	(2 Marks * each)	**8**
OR	iii.	Protocol	(4 Marks)	**8**
		Reservation mechanism	(4 Marks)	
Q.4	i.	Best metric for choosing paths characteristics, interference level, etc	1 Mark	**3**
	ii.	Routing protocols for Adhoc Networks.	(At least 4)	**7**
OR	iii.	Distance-vector routing protocol (DSDV).	4 Marks	**7**
		Write various disadvantages of DSDV.	3 Marks	
Q.5	i.	Wireless Networks	(As per explanation)	**4**
	ii.	List network layer attacks	2 Marks	**6**
		Explain network layer attacks?	4 Marks	
OR	iii.	Security in ad hoc wireless networks	3 Marks	**6**
		Challenges involved in provisioning security	3 Marks	
Q.6		Attempt any two:		
	i.	Introduction	(As per exaplanation)	**5**
	ii.	Adhoc routing protocols	(As per exaplanation)	**5**
	iii.	Compare	(1 Mark*5)	**5**

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