

KLS Gogte Institute of Technology, Belagavi

Department of Information Science Engineering

Academic Year: 2020-21(ODD SEM)

Program: B.E (Information Science Engineering)

Semester: VII

Course Title: Adhoc Sensor Networks

IA Test - I

Code: 18IS744

Adhoc

Max. Marks: 25 marks

Duration: 1 Hr

Date: 11/12/2021

- Instructions:
1. Answer any two 10M questions. 5M question is compulsory
 2. Draw diagrams neatly wherever applicable

Q. No.

[L] [CO] [PO] [M]

1	Explain Dynamic Source Routing in detail with the help of neat diagrams.	2	1	1	10
2	Distinguish between Multipoint relays and Topology Broadcast based on Reverse Path Forwarding Protocol with the help of a neat diagram.	4	1	1	10
3	Discuss Destination -Sequenced Distance-Vector Protocol and Wireless Routing Protocol in detail.	2	1	1	10
4	Discuss the characteristics of Broadcasting in a MANET.	2	2	1	5

Unit 1

IA Test - I

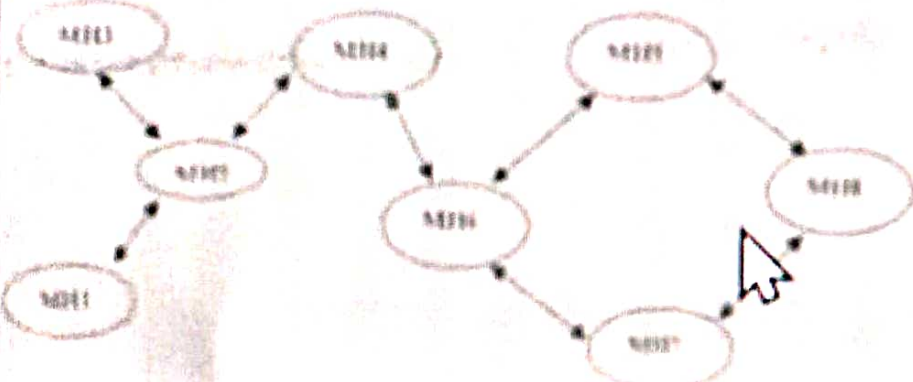
Course Title: Ad-hoc Sensor Networks

Code: IIS1744

Date: 22/11/2022

Max. Marks: 25

Answer any FIVE questions.

Q. No.		[L]	[CO]	[PO]	
1	Explain the important characteristics of a MANET	1	1	1	
2	Apply Destination Sequenced Distance Vector routing protocol(DSDV) for the below ad hoc network and write the routing table at M14.	3	2	2	
					
3	Discuss Topology based and Position based approaches for Routing over ad hoc networks.	2	2	2	5
4	Discuss various Wireless technologies considering data rate, range and application focus.	2	1	1	5
5	Explain the major Challenges in ad hoc sensor networking.	2	1	2	5
6	Discuss Broadcast storm problem in a MANET.	2	2	2	5
7	Discuss in detail different applications of MANETs.	2	1	1	5

KLS Gogte Institute of Technology, Belagavi

Academic Year: 2022-23

Department of Information Science and Engineering

Program: B.E Semester: VII

IA Test – II

Course Title: Adhoc Sensor Networks

Code: 18IS744

Max. Marks: 25

Date: 30/12/2022

Answer any FIVE questions.

Q. No.		[L]	[CO]	[PO]	[M]
1 3	Explain TCP header format with a neat diagram.,	2	3	1	5
2 3	Explain the impact of MAC layer on TCP with a neat diagram.	2	3	1	5
3 5	Explain the application of sensors in Soil moisture monitoring.	2	5	4	5
4	A and B are the only two stations on Ethernet. Each has a steady queue of frames to send. Both A and B attempts to transmit a frame, collide and A wins first back off race. At the end of this successful transmission by A, both A and B attempt to transmit and collide. Calculate the probability that A wins the second back off race .	3	3	2	5
5 3	Compare Slow start and Congestion Avoidance congestion control algorithms.	2	3	1	5
6 3	Discuss in detail the following related to Mobility-Related approach: + TCP feedback ELFN Approach ATCP protocol. • Fixed RTO • TCP-DOOR	2	3	1	5
7 5	Explain the use of Sensors in Disaster Relief Management and Drinking Water Quality.	2	5	4	5

Unit 5 - Environmental monitoring

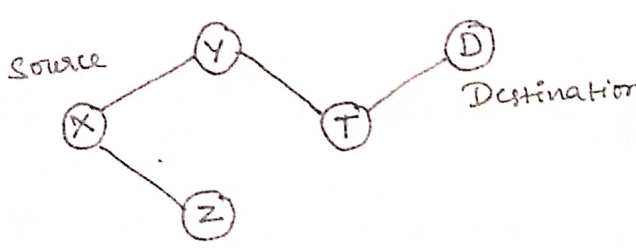
health ...

Compensatory IA

Course Title: Adhoc Sensor Networks
Code: 18IS744
Date: 11/01/2023

Max. Marks: 25

Answer any FIVE questions.

Q. No.		[L]	[CO]	[PO]	[M]
1	<p>For the following ad hoc network, use Adhoc On demand distance vector routing protocol to determine the path from Node X to Node D.</p> 	3	1	2	5
2	Describe scalable broadcast algorithm and explain how Random Delay Timer calculated.	2	2	1	5
3	Explain Explicit Link Failure Notification (ELFN) approach mobility related solutions for TCP over Ad Hoc.	2	3	1	5
4	Explain Fast retransmit congestion control algorithm.	2	3	1	5
5	List and discuss the advantages of WSN over Wired Network. And also Explain why traditional routing protocols are not well suited for WSN	2	4	1	5
6	Discuss the concept of Mobile Sensors in detail.	2	5	1	5
7	Explain in detail the applications of Sensors in Body Area Network	2	5	1	5

Ease of deployment

Scalability

Fault tolerance.

~~Imp~~ IA compensatory . Questions

Unit 1 : TORA

Dynamic source Routing Protocol

Adhoc on demand distance vector

Unit 2 : Broadcasting \rightarrow ^{wireless} ~~an~~ based scheme.

Rebroadcasting schemes.

Multipoint Relaying

scalable broadcast algorithm

Unit - 3 : TCP feedback

ELFN approach

fast retransmit \rightarrow congestion control Algorithm

Unit 4 : Mobile sensors.

Advantages of WSN over wired n/w.

Challenges faced by WSN.

Unit 5 : ✓ Application of sensors in body area n/w

✓ environmental monitoring

✓ Health care monitoring.

ADHOC SENSOR NETWORKS

Time: 3 hrs

Instructions : 1. Answer any FIVE Full Questions selecting at least ONE Question from Each Unit
2. Draw neat diagrams wherever applicable

Max. Marks :100

MODULE 1

L CO PO M

- 1a. State and Explain the challenges faced by the Ad Hoc networks. [2] [1] [1] [10]
- 1b. Discuss Ad Hoc On Demand Distance Vector protocol in detail with neat diagrams [2] [1] [1] [10]

OR

- 2a. Discuss MANET issues with the help of a neat diagram along with its important characteristics. [2] [1] [1] [10]
- 2b. Explain Destination-Sequenced Distance Vector Protocol and Wireless routing Protocol in detail. [2] [1] [1] [10]

MODULE 2

- 3a. Outline the various characteristics of a Broadcast problem. Identify the drawbacks of flooding generated broadcast storm. [2] [2] [1] [10]

- 3b. Show how Jitter and Random Delay Timer can solve the problem of collisions. Explain the methods of implementation of random-access delay. [3] [2] [2] [10]

OR

- 4a. Explain the different broadcast protocols probabilistic scheme, Counter based scheme and Location based scheme in detail. [2] [2] [1] [10]

- 4b. Explain the Location Based Scheme LBM scheme protocol in detail with the help of a neat diagram. [2] [2] [1] [10]

MODULE 3

- 5a. Explain in detail the TCP header format with the help of a neat diagram. [2] [3] [1] [10]

- 5b. Discuss in detail the following related to Mobility-Related approach:
1) Fixed RTO 2) TCP-DOOR [2] [3] [1] [10]

OR

- 6a. Discuss the meaning of any 5 basic terms related to TCP [2] [3] [1] [10]

- 6b. Explain the effects of Partitions on TCP. [2] [3] [1] [10]

MODULE 4

- 7a. Identify the various challenges of Wireless Sensor Networks [2] [4] [1, 2] [10]

- 7b. Explain clustering of Sensor Networks in detail with neat diagrams. [2] [4] [3] [10]

OR

- 8a. Discuss regularly placed clusters with neat diagrams [2] [4] [1] [10]

- 8b. Discuss the concept of Mobile Sensors in detail. [2] [4] [1] [10]

MODULE 5

- 9a. Discuss the applications of Sensors in Green House Monitoring. [2] [5] [1] [10]

- 9b. Discuss the applications of Sensors in Body Area Network [2] [5] [1] [10]

OR

- 10a. Explain the use of Sensors in Disaster Relief Management and Drinking Water Quality. [2] [5] [4] [10]

- 10b. Discuss about the deployment of Sensors and Network formation along with WSN and Query Injection/Response with neat diagrams. [2] [5] [1] [10]

Seventh Semester B.E. MAKEUP Examination, MARCH_MAY_2022

ADHOC SENSOR NETWORKS

Time: 3 hrs

Max. Marks : 100

- Instructions: 1. Answer any FIVE Full Questions selecting at least ONE Question from Each Unit
2. Draw neat diagrams wherever applicable

MODULE 1

L CO PO M

1a. Discuss the different challenges faced by Ad Hoc Networks.

[2] [1] [1] [10]

1b. Explain Multipoint Relays and Topology based on Reverse Path Forwarding Protocol

[2] [1] [1] [10]

OR

2a. Discuss Dynamic Source Routing with neat diagrams for route discovery and route reply.

[2] [1] [1] [10]

2b. Explain Temporally Ordered Routing Algorithm (TORA) with neat diagram.

[2] [1] [1] [10]

MODULE 2

3a. Discuss in detail the Flooding Generated Broadcast Storm with the help of a neat diagram.

[2] [2] [1] [10]

3b. Show how Jitter and Random Delay Timer can solve the problem of collisions. Explain the methods of implementation of random-access delay.

[3] [2] [2] [10]

OR

4a. Discuss Flooding with Self Pruning and Scalable Broadcast Algorithm in detail

[2] [2] [1] [10]

4b. What is multipoint relaying? Differentiate between Ad Hoc Broadcast Protocol and Multipoint Relaying.

[4] [2] [1] [10]

MODULE 3

5a. Explain TCP header format in detail with the help of a neat diagram

[2] [3] [1] [10]

5b. Compare the different congestion control algorithms such as Slow start, Congestion Avoidance and Fast retransmit.

[2] [3] [1] [10]

OR

6a. Explain the effects of partitions on TCP.

[2] [3] [1,2] [10]

6b. Explain TCP-Feedback, Explicit Link Failure Notification (ELFN) approach mobility related solutions for TCP over Ad Hoc.

[2] [3] [1] [10]

MODULE 4

7a. Discuss the different issues related to Clustering of Sensor Networks with neat diagrams.

[2] [4] [1] [10]

7b. Identify and explain in brief the different challenges faced by WSN.

[2] [4] [1,2] [10]

OR

8a. Discuss about clustering of Sensors in detail along with their coverage area.

[2] [4] [3] [10]

8b. List and discuss the advantages of WSN over Wired Network. And also Explain why traditional routing protocols are not well suited for WSN.

[2] [4] [1] [10]

MODULE 5

9a. Discuss the application of Sensors in Disaster Relief Management and Soil Moisture Monitoring

[2] [5] [1] [10]

9b. Describe the application of sensors in Body Area Network

[2] [5] [1] [10]

OR

10a. Write a short notes on:

- 1) Environmental Monitoring.
- 2) Health care Monitoring.

[2] [5] [4] [10]

10b. Discuss about the deployment of Sensors and Network formation along with WSN and Query Injection/Response with neat diagrams.

[2] [5] [1] [10]