R18

Code No: 155AN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, July/August - 2023

COMPUTER NETWORKS

(Common to CSE, CSBS, CESE, CSE(AI&ML), CSE(DS), CSE(IOT))

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	What is internet?	[2]
b)	What are the advantages of Fiber optic cable?	[3]
c)	What is Adaptive Tree Walk Protocol?	[2]
d)	Compare and contrast Cyclic Redundancy Check (CRC) and Checksum method.	[3]
e)	What do you mean by congestion in network?	[2]
f)	Differentiate between router and repeater.	[3]
g)	What is the importance of UDP?	[2]
h)	What are the design issues of transport layer?	[3]
i)	What is the format of HTTP request?	[2]
j)	What are the functions of SMTP?	[3]

PART – B

(50 Marks)

2. Draw the layered architecture of OSI reference model and write at least two services provided by each layer of the model. [10]

OR

3.a) Explain about the components of network hardware and software.
b) Explain about the coaxial cable with neat sketch. [5+5]

4.a) Explain about the Carrier Sense Multiple Access with Collision Avoidance protocol.
b) Describe the one-bit sliding window protocol. [6+4]

OR

5.a) Explain about the Cyclic Redundancy Check with an example.
b) Explain the problems in Framing. [6+4]

6.a) Explain the concept of traffic shaping and how it contributes to QoS implementation.
b) Differentiate between broadcast and multicast communication in the network layer. [6+4]

OR

7.a) Given a network topology with the following link costs between nodes A, B, C, and D: AB = 2, AC = 5, AD = 3, BC = 1, BD = 4, and CD = 2. Calculate the shortest path from node A to node D using Dijkstra's algorithm.
b) How to handle congestion in network layer? [7+3]

8.a) Discuss the role of sequence numbers and acknowledgments in ensuring reliable data transfer in TCP.

b) Discuss transport layer multiplexing and demultiplexing concepts [5+5]

OR

9.a) Explain three-way handshake process used for connection establishment in TCP.

b) Explain the concept of flow control in the transport layer. [6+4]

10.a) How name resolution happens in domain name system?

b) Explain in detail about WWW. [5+5]

OR

11.a) What is Audio Streaming? How does it works? Discuss briefly.

b) What is SNMP? Explain the components of SNMP. [5+5]

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