Printed Page:- Subject Code:- ACSE0502

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech.

SEM: V - THEORY EXAMINATION (2022 - 2023)

Subject: Computer Networks

Time: 3 Hours Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A 20

1. Attempt all parts:-

1-a. A transmission mode that can transmit data in both the directions but transmits in only one direction at a time. (CO1) 1

(a) simplex

(b) half duplex

(c) full duplex

(d) semi-duplex

1-b. Which network topology requires a central controller or hub? (CO1) 1

(a) Star

(b) Mesh

(c) Ring

(d) Bus

1 The data link layer takes the packets from _____ and encapsulates them into frames for transmission. (CO2) 1

(a) network layer

(b) physical layer

(c) transport layer

(d) application layer

1 When 2 or more bits in a data unit has been changed during the transmission, the error is called _____. (CO2) 1

(a) random error

(b) burst error

(c) inverted error

(d) double error

1 In the IPv6 header, the traffic class field is similar to which field in the IPv4 header? (CO3) 1

(a) Fragmentation field

(b) Fast-switching

(c) ToS field

(d) Option field

1 Routing tables of a router keeps track of: (CO3) 1

(a) MAC Address Assignments

(b) Port Assignments to network devices

(c) Distribute IP address to network devices

(d) Routes to use for forwarding data to its destination

1 Transport layer protocols deals with _____ (CO4) 1

(a) application to application communication

(b) process to process communication

(c) node to node communication

(d) man to man communication

1 UDP packets are called as _____ (CO4) 1

(a) Segments

(b) Checksum

(c) Frames

(d) Datagrams

1 Application layer offers _____ service. (CO5) 1

(a) End to end

(b) Process to process

(c) Both End to end and Process to process

(d) None of the mentioned

1	Which one of the following is an internet standard protocol for managing devices on IP network? (CO5)	1

(a) dynamic host configuration protocol

(b) simple network management protocol

(c) internet message access protocol

(d) media gateway protocol

2. Attempt all parts:-

2.a.	Give the relationship between propagation speed and propagation time? (CO1)	2
2.b.	Explain bit stuffing and byte stuffing. (CO2)	2
2.c.	How the packet cost referred in distance vector and link state routing? (CO3)	2
2.d.	Differentiate between Port address and IP address. (CO4)	2
2.e.	What are the two categories of cryptography methods? What is the main difference between the categories? (CO5)	2

SECTION B 30

3. Answer any five of the following:-

3	What is the difference between TCP/IP model and the OSI model? (CO1)	6
3	Differentiate between Circuit switching and Packet switching with suitable diagram. (CO1)	6
3	Explain the Checksum methd with the help of an example. (CO2)	6
3	Differentiate between Slotted Aloha and Pure Aloha with suitable diagrams. (CO2)	6
3.e.	For the address 132.7.21.84 find the type of network and the network address. (CO3)	6
3.f.	The following is a dump of a UDP header in hexadecimal format:CB84000D001C001C. Find the questions given here. a. What is the source port number? b. What is the destination port number? c. What is the total length of the user datagram? d. What is the length of the data? e. Is the packet directed from a client to a server or vice versa? (CO4)	6
3.g.	Write the difference between IMAP and POP. Why they are uses? (CO5)	6

SECTION C 50

4. Answer any one of the following:-

4	What is OSI Model? Explain the functions and protocols and services of each layer? (CO1)	10

4	Write short notes on the following: a) IEEE standards b) Multiplexing techniques (CO1)	10

5. Answer any one of the following:-

5-a.	Explain Cyclic redundancy check method. Find the CRC codeword for the given generator polynomial x3 +1 when data is 11101. (CO2)	10
5-b.	Write short note on: a) Reservation b) Polling c) Token Passing (CO2)	10

6. Answer any one of the following:-

6-a.	What is fragmentation? Why do we need it? Discuss pros and cons of transparent and non-transparent fragmentation. (CO3)	10
6-b.	Explain IPv4 and IPv6 addressing. (CO3)	10

7. Answer any one of the following:-

7-a.	What is congestion Control? Analyze the advantages and disadvantages of performing congestion control at the transport layer, rather than the at the network layer. (CO4)	10
7-b.	Draw the diagram of TCP header and explain the use of following: a) Source and destination port address b) Sequence and acknowledgement numbers. c) urgent pointer. (CO4)	10

8. Answer any one of the following:-

8-a.	Explain the architecture and services of e-mailing system. (CO5)	10
8-b.	Write short notes on i. DNS in the internet ii. Voice Over IP iii. IMAP (Internet Message Access Protocol). (CO5)	10