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Subject Code:- AMCA0304

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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MCA

SEM: III - CARRY OVER THEORY EXAMINATION - APRIL 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 _____ is a data communication system within a building, plant, or campus, or between nearby buildings. (CO1) 1
- (a) LAN
- (b) WAN
- (c) MAN
- (d) none of the above
- 1-b. The performance of data communication network depends on _____. (CO1) 1
- (a) Number of users
- (b) The h/w and s/w
- (c) The transmission
- (d) all of the above
- 1-c. A device that knows how to forward traffic between independent networks is known as a _____. (CO2) 1
- (a) Router

- (b) Switch
 - (c) Hub
 - (d) Node
- 1-d. Protocols in which sender sends one frame and waits for an acknowledgement before sending another frame is known as__ (CO2) 1
- (a) simple protocol
 - (b) unrestricted protocol
 - (c) stop and wait protocol
 - (d) restricted protocol
- 1-e. The design issue of Datalink Layer in OSI Reference Model is__. (CO3) 1
- (a) Representation of bits
 - (b) Synchronization of bits
 - (c) Framing
 - (d) Connection control
- 1-f. In IPv4, when a datagram is encapsulated in a frame, the total size of datagram must be less than the _____. (CO3) 1
- (a) Maximum Unit Transmission
 - (b) Maximum Transmission Unit
 - (c) Maximum Allowed Transmission
 - (d) none of the above
- 1-g. A Transmission Control Protocol (TCP) connection is established and two devices ensure that they're speaking the same protocol. What has occurred? (CO4) 1
- (a) handshake
 - (b) two way handshake
 - (c) three way handshake
 - (d) four way handshake
- 1-h. What IP address class allocates 8 bits for the host identification part? (CO4) 1
- (a) Class A
 - (b) Class B
 - (c) Class C
 - (d) Class D
- 1-i. The packet of information at the application layer is called _____. (CO5) 1

- (a) Packet
- (b) Message
- (c) Segment
- (d) Frame

- 1-j. In public key cryptosystem _____ keys are used for encryption and decryption. (CO5) 1
- (a) Same
 - (b) Different
 - (c) Encryption Keys
 - (d) None of the mentioned

2. Attempt all parts:-

- 2.a. What is NIC? (CO1) 2
- 2.b. Write down the categories of flow control protocol. (CO2) 2
- 2.c. Define Delay. (CO3) 2
- 2.d. Define Maximum Segment Size. (CO4) 2
- 2.e. Define HTTP. (CO5) 2

SECTION B

30

3. Answer any five of the following:-

- 3-a. Explain the network topologies. (CO1) 6
- 3-b. Discuss the term optical fiber. What are the major advantages and disadvantages of optical fiber? (CO1) 6
- 3-c. What do you understand by the term encapsulation. Explain with an example. (CO2) 6
- 3-d. Explain any two channelization techniques. (CO2) 6
- 3.e. Discuss Reassembly with an example. (CO3) 6
- 3.f. Discuss the differences between Port numbers and IP addresses. (CO4) 6
- 3.g. Differentiate between passive attacks and active attacks. (CO5) 6

SECTION C

50

4. Answer any one of the following:-

- 4-a. Explain the comparison between LAN, MAN and WAN. (CO1) 10
- 4-b. Discuss the layered structure of OSI model. How does information get passed from one layer to the next in the internet model? (CO1) 10

5. Answer any one of the following:-

- 5-a. Discuss Checksum with an example. (CO2) 10
- 5-b. Explain in detail the error detection and correction code. (CO2) 10
- 6. Answer any one of the following:-**
- 6-a. Explain the switching techniques in detail. (CO3) 10
- 6-b. Discuss the ARP Protocol with an example. (CO3) 10
- 7. Answer any one of the following:-**
- 7-a. Discuss the techniques for improving the quality of service in detail. (CO4) 10
- 7-b. Explain in detail congestion control techniques. (CO4) 10
- 8. Answer any one of the following:-**
- 8-a. Discuss the applications in cryptography. (CO5) 10
- 8-b. Discuss telnet in detail with an example. (CO5) 10