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Subject Code:- ACSE0502

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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: V - 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. Fire alarms are based on this type of transmission: (CO1) 1
- (a) direct
 - (b) network
 - (c) analog
 - (d) multiple
- 1-b. _____ LAN topology describes the possible connections between pairs of networked end-points that can communicate. (CO1) 1
- (a) Complex
 - (b) Physical
 - (c) Logical
 - (d) Incremental
- 1-c. The Stop-And-Wait ARQ, Go-Back-N ARQ, and the Selective Repeat ARQ are for _____ channels. (CO2) 1
- (a) noiseless

- (b) noisy
- (c) either (a) or (b)
- (d) neither (a) nor (b)
- 1-d. Protocols in which stations listen for a carrier and act accordingly are_____. 1
(CO2)
- (a) ALOHA
- (b) Multiple access
- (c) Station Model
- (d) CSMA
- 1-e. A 4 bytes IP address consists of _____. (CO3) 1
- (a) only network address
- (b) only host address
- (c) network address & host address
- (d) network address & MAC address
- 1-f. Supernetting found in which type of IP addresses: (CO3) 1
- (a) Classfull
- (b) Classless
- (c) Both A & B
- (d) None
- 1-g. What is the typical range of Ephemeral ports? (CO4) 1
- (a) 1 to 80
- (b) 1 to 1024
- (c) 80 to 8080
- (d) 1024 to 65535
- 1-h. What does the port number in a TCP connection specify? (CO4) 1
- (a) It specifies the communication process on the two end systems
- (b) It specifies the quality of the data & connection
- (c) It specify the size of data
- (d) All of the these
- 1-i. The _____ translates internet domain and host names to IP address. 1
(CO5)
- (a) domain name system
- (b) routing information protocol

(c) network time protocol

(d) internet relay chat

- 1-j. The first line of HTTP request message is called _____. (CO5) 1
- (a) Request line
- (b) Header line
- (c) Status line
- (d) Entity line

2. Attempt all parts:-

- 2.a. What are the three fundamental characteristics determine the effectiveness of the data communication system? (CO1) 2
- 2.b. Write short note on Thick Ethernet. (CO2) 2
- 2.c. Write down the difference between Hardware addressing versus IP addressing. (CO3) 2
- 2.d. Define UDP? (CO4) 2
- 2.e. What are the advantages & disadvantages of secret key encryption? (CO5) 2

SECTION B

30

3. Answer any five of the following:-

- 3-a. Explain transmission medium. How are the guided media different from unguided transmission media? (CO1) 6
- 3-b. Explain the components of computer networks. (CO1) 6
- 3-c. Explain fixed size framing and Variable sized Framing with the help of examples. (CO2) 6
- 3-d. Differentiate between FDMA and TDMA. (CO2) 6
- 3.e. Find the class of the network if the address is 221.46.75.64. (CO3) 6
- 3.f. Can you explain how TCP, which uses the services provided by the unreliable IP, can provide reliable communication? (CO4) 6
- 3.g. Discuss in detail about DNS and its frame format. (CO5) 6

SECTION C

50

4. Answer any one of the following:-

- 4-a. What are goals and applications of computer network? (CO1) 10
- 4-b. How network performance can be defined. What are the characteristics of network performance. Explain transmission impairments. (CO1) 10

5. Answer any one of the following:-

- 5-a. Explain Variable size framing and two approaches used for it with diagram. 10
(CO2)
- 5-b. Explain Go Back N ARQ Sliding window protocol with suitable diagram. Also 10
write down its drawbacks. (CO2)

6. Answer any one of the following:-

- 6-a. What is IP addressing? How it is classified? How is subnet addressing is 10
performed? (CO3)
- 6-b. Find out the netid and hostid of following addresses: (i) 111.64.2.6 (ii) 131.57.9.3 10
(iii) 207.64.52.11 (iv) 225.34.2.1 (v) 17.5.0.0. (CO3)

7. Answer any one of the following:-

- 7-a. Explain the concept of sliding window technique for error control in the 10
transport layer. (CO4)
- 7-b. Describe the roles and significances of multiplexing and demultiplexing in 10
transport layer? (CO4)

8. Answer any one of the following:-

- 8-a. Describe different cryptographic principles. (CO5) 10
- 8-b. Explain the operation used for transforming plaintext to ciphertext. (CO5) 10