Printed Page:- **Subject Code:- ACSBS0602**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: VI - THEORY EXAMINATION (20.....- 20.....)

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 network hub works at a __ layer of an OSI reference model. (CO1, K3) 1

(a) Layer 1
(b) Layer 2
(c) Layer 3
(d) Layer 4

1-b. A communication between a computer and a keyboard involves _____ transmission. (CO1, K3) 1

(a) simplex
(b) half duplex
(c) full duplex
(d) semi-duplex

1-c. _____ multiplexing technique is used to transmit optical signals . (CO2, K2) 1

(a) WDM
(b) FDM
(c) TDM
(d) CDM

1-d. In TDM, slots are further divided into _____ (CO2, K2) 1

(a) Seconds
(b) Frames

.

(c) Packets
(d) Bits

1-e. The Stop-And-Wait ARQ, Go-Back-N ARQ, and the Selective Repeat ARQ are for _____ channels. (CO3, K3) 1

(a) noiseless
(b) noisy
(c) either (a) or (b)
(d) neither (a) nor (b)

1-f. To avoid collisions on wireless networks, _____was invented. (CO3, K3) 1

(a) CSMA/CA
(b) CSMA/CD
(c) either a or b
(d) Both a and b

1-g. Security based connection is provided by which layer_____. (CO4, K4) 1

(a) Network layer
(b) Session layer
(c) Application layer
(d) Transport layer

1-h. A port address in TCP/IP is _____ bits long. (CO4, K4) 1

(a) 32
(b) 48
(c) 16
(d) 8

1-i. The frequency band of Bluetooth radio is around _____ (CO5, K3) 1

(a) 2.3 GHz
(b) 2.1 GHz
(c) 2.4 GHz
(d) 2.2 GHz

1-j. Encryption system is_____(CO5, K3) 1

(a) Symmetric key encryption algorithm
(b) not an encryption algorithm
(c) Asymmetric key encryption algorithm
(d) None of the above

2. Attempt all parts:-

2.a. Describe Router.(CO1, K3) 2

2.b. Define VLAN. (CO2, K2) 2

2.c. Define single bit error and multiple bit error. (CO3, K3) 2

2.d. Define the slow start algorithm. (CO4, K4) 2

2.e.	What is the role of application layer? (CO5, K3)	2
SECTION-B		30
3. Answer any five of the following:-		
3-a.	Define distributed system. (CO1, K3)	6
3-b.	Describe the different types of network topology. (CO1, K3)	6
3-c.	Briefly explain why FDM is not so successful. (CO2, K2)	6
3-d.	Explain the role of interleaving process. (CO2, K2)	6
3.e.	Explain the Checksum method with the help of an example. (CO3, K3)	6
3.f.	Explain the quality of service in transport layer. (CO4, K4)	6
3.g.	Explain the architecture and services of e-mailing system. (CO5, K3)	6
SECTION-C		50
4. Answer any one of the following:-		
4-a.	Explain TCP/IP model and how it works? (CO1, K3)	10
4-b.	Explain the need and goals of computer networks also discuss the practical example . (CO1, K3)	10
5. Answer any one of the following:-		
5-a.	Explain the concept of spread spectrum with the help of example. (CO2, K2)	10
5-b.	Explain the need of guard bands with the help of example. (CO2, K2)	10
6. Answer any one of the following:-		
6-a.	Explain various Controlled access protocols with suitable diagram. (CO3, K3)	10
6-b.	Write short notes on: (a) Stop and Wait protocol (b) Simplex protocol (CO3, K3)	10
7. Answer any one of the following:-		
7-a.	Explain the frame format of IPv4 and IPv6? What are the advantages of IPv6 and IPv4? (CO4, K4)	10
7-b.	Define traffic shaping. Explain the techniques for traffic shaping. (CO4, K4)	10
8. Answer any one of the following:-		
8-a.	Describe Firewalls and its components in detail. (CO5, K3)	10
8-b.	Explain the message transfer using simple mail transfer protocol. (CO5, K3)	10