ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Computer Science)

WARNING

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

Course: Data Communication & Networks (3584/3429)

Level: PGD (CS) **Semester: Autumn, 2012**

Total Marks: 100 **Pass Marks: 40**

ASSIGNMENT No. 1

Note: All questions carry equal marks.

Q.1 Define the following terminologies: Bandwidth, Bit rate, Baud, Congestion, Convergence.

Q.2 Differentiate the LAN, WAN and MAN with the help of real life example.

Q.3 What is topology? Differentiate different LAN topologies in detail. Also discuss three modes of transmission.

Q.4 Write a detail note on the characteristics of Guided & Un-Guided transmission Medias.

Q.5 Study the various modern interfacing techniques and write a summarized report of your study.

ASSIGNMENT No. 2

Total Marks: 100 **Pass Marks: 40**

Note: All questions carry equal marks.

Q.1 Differentiate modulation and demodulation? Also write down a detailed explanation of various modulation techniques.

Q.2 Compare OSI reference Model with TCP/IP reference model with the help of examples.

Q.3 Write the difference between guided media and unguided media with examples of each.

Q.4 Write a detailed note on Flow control and Error control in detail.

Q.5 Compare & contrast the following with examples:
a) Bridge & router
b) Direct cable & cross over cable
c) Circuit Switching & Packet Switching
d) DTE & DCE

3584 (Old 3429) Data Communication & Network

Recommended Book:

1) Data and Computer Communication by William Stallings 5th Edition

2) Computer Networks by Tanenebaum 3rd Edition

Unit 1 Data Communication Concepts

Communication Model, Communication Tasks, Types of Signal and Data, Bandwidth and Channel Capacity, Point to Point and Multi Point Link, Simplex, half Duplex, and full Duplex Transmission, Modulation, Demodulation.

Unit 2 Computer Networking Concepts

a) LAN, WAN, MAN
b) Logical & Physical Topology of Network
c) LAN Topologies (Bus, Tree, Star, Ring)
d) Network Application and Services
e) Network Models

Unit 3 Protocols, OSI Reference Model and TCP/IP Protocol Suite

a) Protocols and its Components
b) OSI Reference Model
c) TCP/IP Suit

Unit 4 Transmission Impairments and Transmission Media

a) Transmission Impairments (Attenuation, Delay Disaster, Noise)
b) Guided Media (Twisted pair, Coaxial Cable, Optic Fiber)
c) Unguided Media (Wireless Transmission and Satellite)
d) Practical *

Unit 5 Data Communication Interface and Multiplexing

a) A System and System Transmission
b) Inter Facing of DTE & DCE
c) Frequency Division Multiplexing
d) Time Division Multiplexing

Unit 6 Data Link Control

a) Flow Control (Stop and Wait Flow Control, Sliding Window Flow Control)
b) Error Control (Error detection, Parity technique, CRC Technique, Error Correction, Stop & Wait ARQ)

Unit 7 LAN Technologies and Systems

a) LAN Architecture
b) Ethernet and FAST Ethernet LANS (CSMA/CD)
c) Token Ring Network
d) FDDI
e) High Speed Ethernet (Gigabit LANS)

Unit 8 Disaster Recovery and System Configuration

a) Disaster Recovery (Data Protection Techniques, System Failures Protection Techniques)
b) System Configuration (Installing and Configuring Network devices (Modern and NIC) Network Configuration and Administration)
c) Practical **

Unit 9 Inter Network Devices and WAN Services

a) Bridges
b) Routing
c) Circuit Switching Network
d) Packet Switching Network
e) ISDN Links
f) ATM and Frame Relay

* ***The institution should arrange the following to make and test UTP Cable from the students used in star topology***

a) Direct Cable b) Cross over Cable

** ***The Institution should arrange the following labs:***

a) Install network OS and configuration of Network devices.
b) Managing user accounts and user rights