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

Course: Data Communication & Networks (3429/3584)

Level: Postgraduate   **Semester: Spring, 2013**
Total Marks: 100

ASSIGNMENT No. 1

Note: All questions carry equal marks.

Q.1   Describe the importance of tasks carried out driving communication process.

Q.2   What are the advantages of networks topology? Compare any two of them with detail explanation.

Q.3   Discuss the various components of communication protocols.

Q.4   Define transmission media. Also discuss its various types in detail.

Q.5   What is the difference between attenuation & noise?

ASSIGNMENT No. 2
Total Marks: 100

Note: All questions carry equal marks.

Q.1   What is interfacing? Describe the interfacing technique of DTE and DCE?

Q.2   Differentiate between data flow control and error control.

Q.3   Discuss the various characteristics of token Ring network and FDDI network.

Q.4   Elaborate the responsibilities of network system administration.

Q.5   Discuss the usage and importance of various inter-networks devices.

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**

Course Outlines:
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