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

Course: Network Programming (3487)   Semester: Spring, 2014
Level: Bachelor   Total Marks: 100

Assignment No. 1

Note: *All questions carry equal marks.*

Q.1   What are Winsock programming considerations, architecture, and capabilities available to Winsock developers? Elaborate.

Q.2   Describe the most important Winsock function in detail.

Q.3   Differentiate between IPv4 and IPv6 packet headers with the help of sketch.

Q.4   Discuss the techniques used by IPv4 and IPv6 protocols.

Q.5   (a)   What are the complications of various socket modes?
       (b)   Discuss the input/output techniques of socket in detail.

Assignment No. 2

Total Marks: 100

Note: *All questions carry equal marks.*

Q.1   The real difficulty lies in developing a scalable Winsock application that can handle a single connection or thousands of connections? Why justify?

Q.2   What is Ioctlesocket? Ioctlesocket does various network-related controls. Elaborate.

Q.3   Define a service. Describe the service queuing techniques in detail.

Q.4   Describe the importance of TCP and UDP client server and echo in Winsock execution?

Q.5   (a)   During the Winsock what are QoS approach?
        (b)   Describe the functionality and characteristics of creating a RAW socket? Elaborate.

COURSE OUTLINE
3487 Network Programming

Credit Hours: 3 (2+1)

Recommended Book: *Network Programming for Microsoft Windows: Second Edition by Anthony Jones*

Unit No. 1:   Winsock & its Design
Initializing and Creating Winsock
Connectionless, Connection Oriented Winsock and APIs
Protocol Characteristics, WinSock Catalogue

Unit No. 2:   Internet Protocol
IPv4 & IPv6
Addressing and Name Resolution
Writing IP Version _ Independent Programs

Unit No. 3:   WinSock I/O Methods
Socket Modes, Socket I/O Models
I/O Model Consideration

Unit No. 4:   Scalable WinSock Applications
APIs and Scalabilities
Scalable Server Architecture
Server Strategies

Unit No. 5:   Socket Options and Ioctls
Socket Options
Ioctlesocket, WSAlostl and WSANSPlostl

Unit No. 6:   Registration and Name Resolution
Name Space Model
Registering a Service
Querying a Service

Unit No. 7:   Winsock Programming
TCP and UDP Client Server
TCP and UDP Day Time Servicing
TCP and UDP echo

Unit No. 8:   Generic Quality of Service
QOS and WinSock
Terminating QOS
Programming QOS

Unit No. 9:   RAW Sockets
RAW Sockets Creation
ICMP
Using IP Header Include Option