

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: Network Programming (3487)
Level: Bachelor

Semester: Spring, 2013
Total Marks: 100

ASSIGNMENT No. 1

Note: All questions carry equal marks.

- Q. 1 What is Winsock. How it is created and Initialize? Also discuss its characteristics.
- Q. 2 Discuss in detail different socket modes and explain their usage with the help of examples. Also describe the Winsock cataloging in detail.
- Q. 3
 - a) What are the prominent features of IPv4.
 - b) How to write applications that works seamlessly over IPV4 and IPV6.
- Q. 4 What is RAW socket? Explain. Also explain the ICMP protocol header.
- Q. 5
 - a) Discuss concisely the advantages and disadvantages of various socket modes.
 - b) Define socket input/output models in detail.

ASSIGNMENT No. 2

Note: All questions carry equal marks.

- Q. 1 What is service? What mechanisms are adopted to register a service? Explain with examples.
- Q. 2 Write down the difference between QOS enabled network and QOS not enabled network.
- Q. 3 What is the difference between high throughput server and high connections server? Explain with the help of examples.
- Q. 4
 - (a) How quality of service is carried out Winsock prospective?
 - (b) What is the procedure for creating a RAW socket? Elaborate.
- Q. 5 Explain the following functions and their uses:-
 - a) Lcctlosocket
 - b) WS Aloctl
 - c) WSANS Ploctl

3487 Network Programming

Credit Hours: 3 (2+1)

Recommended Book:

Network Programming for Microsoft Windows: Second Edition by Anthony Jones

Course Outlines:

Unit No. 1 Winsock & its Design

- ◆ Initializing and Creating Winsock
- ◆ Connectionless, Connection Oriented Winsock and APIs
- ◆ Protocol Characteristics, WinSock Catalog

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 Ioctl

- ◆ Socket Options
- ◆ Ioctlsocket, WSAIostl and WSANSPIostl

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