Network Programming PAST Questions

network programming (Pokhara University)

POKHARA UNIVERSITY

Level: Bachelor | Semester – Fall | Year : 2011
Programme: BE | Full Marks: 100
Course: Network Programming | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What do you mean by communication protocol? Explain the transport layer in TCP and UDP protocol.
   b) Explain the internet protocol with the help of IP- packet format.
   c) Explain the concept of UUCP in UNIX networks.
2. a) What is Berkley Socket? Explain bind ( ) system call and connect ( ) system call in Berkeley Socket.
   b) What is File Descriptor? Explain the mechanism of passing file descriptor in UNIX Socket Programming.
3. a) How can we connect to the well known socket of the server process? Explain the functions and all its parameters.

OR

Explain the importance of UNIX domain protocol and Explain the address structure of UNIX domain.

b) Write down the different models of I/O. Also explain I/O multiplexing with the help of select system calls.

4. a) What is process table entry in sharing structure? Explain msghdr structure with their elements.

OR

Write syntax for sending and receiving data over DGRAM socket in case of Winsock Programming and Explain different arguments and parameters used.

b) What do you by DDL file in winsock programming? Write the name any of primary five windows network dependent DDL files.

a) Define the FTP and TFTP with suitable example. 5
b) What are the roles of "System call pairs" in data transfers? 5
c) Explain the functions fnctl and ioctl. 5
a) Explain the initialization and termination process in IPX. 8
b) Explain the features of Novell Netware for security system with the help of NCP frame format. 7

Write short notes on **any two:** 2×5

a) STREAM_ SOCKET
b) Reserved ports
c) Remote login

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Network Programming

Semester – Fall

Year : 2012
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1.	a)	Explain the role of protocol in communication? List out the some of the Communication protocol you know.	7
	b)	Explain the SPX protocol along with its frame format.	8
2.	a)	Explain role of Ip and Port number in network programming? Write syntax to convert the ip to network byte order.	8
	b)	Why socket are called endpoint? Explain value result argument with example.	7
3.	a)	Explain descriptor passing and its importance in Unix network programming.	8
	b)	Explain how I/O multiplexing model make data available for you.	7
4.	a)	List out the address family that we have in windows socket API.Explain sockaddr_in Structure elements	7
	b)	Why we use WSAStartup ( ) and WSACleanup ( ) function in windows network Programming	8
5.	a)	Explain how you will communicate between UNIX and windows using socket and List out the call that is need for communication	8
	b)	What is importance of DLL in windows? Explain Winsock API and its importance.	7
6.	a)	Explain structure of ECB used by IPX/SPX.	7
	b)	Write a function that open and close the socket in IPX/SPX network programming.	8
7.	Write short notes on **any two:**		2×5
	a)	Socket ( )	
	b)	WSAGetLastError ( )	
	c)	Remote Login	

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2013
Programme: BE Full Marks: 100
Course: Network Programming Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Why protocol is necessary while exchanging data dynamically between two process with the help of suitable example. 8
   b) Compare & contrast between SNA and OSI model with suitable diagram. 7
2. a) Why socket are called end point? Give syntax for creating end point and explain the parameter passed on to create different protocol end point. 8
   b) What is File Descriptor? Explain the mechanism of passing file descriptor in UNIX Socket Programming. 7
3. a) Write down the different models of I/O. Explain I/O multiplexing with the help of select system calls. 8
   b) Explain struct sockaddr_in. Write down network byte order function. 7
4. a) Discuss the role of DDL file in winsock programming. Write the name of major 5 windows network dependent DLL files. 8

   OR

   What do you mean by Internet Domain Socket? Explain address structure of Internet domain.
   b) Write syntax for sending and receiving data over DGRAM socket in case of Winsock Programming and explain different arguments and parameters used. 7
5. a) Explain the difference between FTP and TFTP with appropriate examples. 5
   b) Explain the role and functions of fnctl ( ) and ioctl ( ). 5
   c) What are the various "system call pairs" used in data transfer? 5
   a) Compare IPX and SPX according to their frame format. 8
   b) Explain the closing and opening routine for IPX. 7
   Write short notes on: (Any two) 2×5
   a) Novel Netware
   b) Windows extension socket API.
   c) Port.

POKHARA UNIVERSITY

Level: Bachelor | Semester: Spring | Year : 2013
Programme: BE | Full Marks: 100
Course: Network Programming | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Briefly explain the various protocols involved in application layer of TCP/IP.
   b) List out some of the interesting features provided by Novel Netware.
2. a) Explain how TCP client server establish and terminate connection with the help of various system calls.
   b) What do you mean by value result argument? Explain value result argument with suitable syntax.
3. a) Explain the use of Select function with suitable programming example.
   b) Briefly explain the data structures to represent an open file in UNIX system with suitable diagram.
4. a) Explain Windows Socket architecture with the help of figure.
   b) How API are implemented in Windows Socket? Explain why we used WSACleanup () function despite of closesocket ().
5. a) Explain the Winsock function that we use for data transmission and connection termination.
   b) Briefly explain the types of Novell Netware DOS/Window driver and importance of the ECB.
6. a) Draw the timeline diagram of socket system calls for connection less protocols in Novell Netware.
   b) Explain the role of IPX and SPX data structure in Network programming.
7. Write short notes on: (Any two)
   a) UUCP
   b) Data manipulation Functions
   c) Remote Login.

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2014
Programme: BE Full Marks: 100
Course: Network programming Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Explain the concept of IBM-APPN Networking nodes and Services with suitable diagram.
   b) What do you mean by network programming and socket programming? When do you prefer the stream and datagram protocols?
2. a) What do you mean by Berkley Socket? Explain the sockaddr_in structure elements.
   b) Write a program to create concurrent streaming server using Berkeley Sockets.
3. a) Explain different functions that are used for connectionless client server communication.
   b) What do you mean by I/O Multiplexing? When do you need I/O multiplexing in programming? Explain the function that we use for I/O multiplexing.
4. a) Briefly describe the Windows Blocking, Non-blocking and Asynchronous I/O.
   b) How does AFD.SYS file handle buffer management in Windows Network Application?
5. a) Write syntax for sending and receiving data over DGRAM socket in case of Winsock Programming and Explain different arguments and parameters used.
   b) What are the functions of Winsock API and DLL? Briefly explain the Winsock kernel architecture.
6. a) Explain the datagram service provided by IPX. Explain the initialization and termination process in IPX.

   b) Compare IPX and SPX Protocol with their frame formats.
7. Write short notes on: **(Any two)**
   a) FTP and TFTP.
   b) Shutdown Vs Closecket function
   c) SPX functions.

POKHARA UNIVERSITY

Level: Bachelor | Semester: Spring | Year : 2014
Programme: BE | Full Marks: 100
Course: Network Programming | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What do you mean by process to process communication? Explain the need of TCP/IP protocol in network programming.
   b) Explain the basic concept related to SNA (System Network Architecture) nodes, terminals and its services.
2. a) How message is exchange using UNIX domain protocol? Write the syntax to group Socket, end point with UNIX address.
   b) Write small piece of code to make socket to Non blocking mode and explain how Non Blocking I/O differs from the Blocking I/O model.
3. a) How do you specify different socket options in internet sockets? Explain the need of SO_KEEPALIVE and SO_ LINGER socket options.
   b) Define socket descriptor. Differentiate between socket descriptor return from socket ( ) and accept ( ) system call along with its syntax.
4. a) Explain Windows Socket architecture with suitable diagram along with its Helpers DLLs and Interface implemented.
   b) Compare ioctlsocket( ) and fcntl( ) in windows.
5. a) What are the advantages of using windows asynchronous I/O? Write piece of code for asynchronously receiving and writing data to and from network.
   b) What do you mean by I/O Multiplexing? How is overlapped I/O model implemented in winsock?
6. a) Discuss the structures and functioning of IPX Protocol.
   b) What is Novel Netware? Explain the role of ECB with necessary structure.
7. Write short notes on: (*Any two*)
   a) NCP
   b) R login
   c) Value Result Argument.

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2015
Programme: BE Full Marks: 100
Course: Network Programming Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is Network Programming? What is the difference between concurrent and iterative server?
   b) Compare IP, UDP and TCP protocol features.
2. a) What do you understand by system calls used with sockets? Briefly describe any two of them.
   b) Write a TCP socket program to implement an Echo server/Echo client.

OR

Discuss the following scenario of server operations.

I. Crashing of server host
II. Crashing and rebooting of server host

3. a) Compare Blocking I/O, Non-blocking I/O, Signal Driven I/O and Asynchronous I/O.
   b) Explain the function of fnctl and ioctl
4. a) Write a program to determine host byte order in C.
   b) What is the similarity and difference between connect () and bind () function? Explain with function signature.
5. a) Briefly describe Blocking, Non-blocking and Overlapped I/O in Winsock Programming.
   b) What is a file descriptor? Explain the mechanism of passing file descriptor in Unix socket programming?
6. a) What are the steps to create server program in Winsock Programming? Write a complete server program to illustrate.
   b) Compare IPX and SPX protocol with their frame format
7. Write short notes on: (Any two)
   a) Ping Program
   b) Application of Reserve Ports
   c) Socket function (in UXIX)

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Network Programming (New)

Semester: Spring

Year : 2015
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Discuss about the different ways for making Remote Procedure Call. Provide an overview of TCP state transition
   b) with supporting diagrams wherever necessary.

2. a) Discuss about the different constituents of the UNIX Socket Address Structures.
   b) How is the Socket address structure passed from process to kernel. Explain

3. a) How do you implement a Concurrent Servers. Provide a stepwise overview.
   b) Compare and contrast synchronous and asynchronous I/O modes for UNIX programming.

4. a) Why are the getsockopt and setsockopt used. Provide a comparison with the help of relevant
   b) Compare and contrast the UNIX domain socket with the INTERNET domain socket.

5. a) Discuss about the Winsock architecture. Point out the necessity of the winsock DLL.
   b) Differentiate between recv and WSARecv. Explain with their syntax and parameters.

6. a) How do you implement stream communication in Winsock. Describe each steps with the help of relevant APIs
   a) Provide a code snippet for Sending and Receiving Data over connection using Winsock Programming.

7. Write short notes on: **(Any two)**
   a) Socket System Calls
   b) WSAStartup
   c) Netsat
   d) ifconfig vs ipconfig

POKHARA UNIVERSITY

Level: Bachelor | Semester: Fall | Year : 2016
Programme: BE | Full Marks: 100
Course: Network Programming | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) "Protocol is needed for network communication." Justify with client and server as two communicating parties.
   b) Explain TCP state transition with a supporting diagram.
2. a) Compare UNIX domain socket address structure and Internet domain socket address structure with necessary codes.
   b) What is a concurrent server? Explain the use of fork() function in developing a concurrent server?
3. a) Compare TCP and UDP sockets on the basis of the socket call and I/O function.
   b) List I/O models in UNIX system. And, elaborate any three of them.
4. a) Discuss why we need syslog. List and explain various syslog priority levels.
   b) Elucidate the mechanism of passing the file descriptor in the UNIX System.
5. a) Illustrate Windows Socket architecture by drawing a suitable diagram along with helper DLLs and their interfaces.
   b) What is an overlapped I/O? Explain how WSASocket() and WSASend() can be used to implement asynchronous I/O.
6. a) Clarify the role of Startup() in Winsock programming. Also explain send() and recv() functions.
   b) Describe the use of connect() function with non-blocking socket.
7. Write short notes on: **(Any two)** 2
   a) Ping
   b) Remote login
   c) TFTP

POKHARA UNIVERSITY

Level: Bachelor | Semester: Fall | Year : 2017
Programme: BE | Full Marks: 100
Course: Network Programming | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Which transport level protocols will you use to exchange control information (play, pause, rewind, forward, etc.) and real-time audio-video data between client and server in the movie streaming application. Justify your answers.
   b) Explain TCP state transition with a supporting diagram.
2. a) What are the different socket structures used in Unix system to make system calls such as connect and bind independent of IP versions.
   b) Discuss the use of fork function to develop a concurrent server with the help of pseudo-code?
3. a) What is I/O multiplexing? Explain the use of select function in the context of I/O multiplexing in detail.
   b) Write a program to create a TCP echo server.
4. a) What are the socket options? Which functions are used to set and get a value of socket options? Explain them in detail.
   b) Explain the mechanism of passing file descriptor in the Unix System.
5. a) Explain the Winsock architecture. What are the different Winsock asynchronous database functions?
   b) Differentiate between recv and WSARecv based on their uses, input/output arguments and return values.
6. a) How do you implement stream communication in Winsock? Describe each step with the help of relevant APIs.
   b) Explain with the help of pseudo-code the use of accept with select such that the accept function doesn't block.
7. Write short notes on: **(Any two)**
   a) netstat
   b) ifconfig/ipconfig
   c) TFTP

2:

POKHARA UNIVERSITY

Level: Bachelor | Semester: Spring | Year : 2017
Programme: BE | Full Marks: 100
Course: Network Programming | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Explain relationship between Socket, Port and IP with help of outline code.
   b) Explain network programming model with help of suitable diagram.
2. a) What do you mean by byte manipulation function? List out same for the ANSIC with suitable syntax and parameter supplied.
   b) What is UNIX domain socket? Explain how message is exchange between UNIX domains Socket with help of suitable code.
3. a) How Blocking I/O model ,TCP and UDP socket read and write message to and from The Kernel Buffer with the help Of suitable piece of code.
   b) What are advantages of UNIX domain Protocol? Explain with the help of code how fcntl() function set blocking socket to non-blocking socket.
4. a) What is Socket Descriptor? Under what condition descriptor is said to be ready?
   b) Why log management is important in programming. Explain how UNIX provide log management facility to network based application.
5. a) What are the advancement that is done by WINSOCK over BSD socket.
   b) Discuess how you use select in conjunction with accept call in Winsock.
6. a) ExplainWSASocket(),WSAAccept(),WSAConnect(),WSARecv(),WSA Send() call.
   b) What is overlapped I/O socket? Explain its advantages in windows programming.
7. Write short notes on: (Any two)
   a) Telent
   b) Remote login
   c) netstat

POKHARA UNIVERSITY

Level: Bachelor | Semester: Fall | Year : 2018
Programme: BE | Full Marks: 100
Course: Network Programming | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Justify TCP and IP is needed for exchanging message between process in Client/Server Paradigm.
   b) TCP Client/Server socket are in ESTABLISHED state, what if client call the close () function. Explain the state of TCP Client/Server state after close call is issued.
2. a) What are the different types of communication address used by Socket? Explain how you use this code with help of suitable code.
   b) Explain Generic socket address structure with help of code along with its importance.
3. a) List out and Explain TCP server socket listen () function along with its completed and Pending queue with suitable outline code.
   b) Give your reason why we required to use getsockname () and getpeername () Functions.
4. a) Write simple program to display source ip,port and destination ip ,port using the TCP Server Socket.
   b) Compare ioctl() and fcntl() function along with their code used.
5. a) Explain widows socket architecture with help of suitable diagram along with helper DLLs and their interfaces.
   b) Explain the types of DLLs File in windows? Explain WSAStartup (), WSACleanup () Function in windows with suitable out line code.
6. a) Explain with help of code how select can be used conjunction with accept call.
   b) Outline the simple UDP windows client program which can send and receive the data without establishing the connection with the server.
7. Write short notes on: **(Any two)**
   a) Compare netstat and telnet
   b) Ping(icmp request and reply)
   c) c) Remote Login

POKHARA UNIVERSITY

Level: Bachelor | Semester: Spring | Year : 2018
Programme: BE | Full Marks: 100
Course: Network Programming | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Compare TCP, UDP and SCTP. Explain 3-way and 4-way handshake for connection establishment and connection termination mechanisms with supporting diagrams.
   b) Explain TCP state transition diagram with suitable diagram.
2. a) What do you mean by socket descriptor? What are the different arguments /parameters for socket ( ) function call in Barkley socket API?
   b) What is byte ordering? Explain the following function:
   bzero(),bcmp(),bcopy(),inet_aton(),inet_addr(),inet_ntoa(), inet_pton() and inet_ntop().
3. a) What is a connection queue? What are the possible circumstances that might cause connect () function to return an error?
   b) What is a concurrent server? Explain how fork ( ) identifies child and parent process with suitable code.
4. a) Compare Synchronous I/O Multiplexing with Nonblocking I/O mode. What are the different functions used to implement these I/O models in Berkeley socket API?
   b) Write a simple UDP server program using Berkeley socket API?
5. a) What are the major differences between Berkeley socket API and Winsock API?
   b) Explain windows Socket Architecture with suitable diagram.
6. a) Explain different I/O handling modes in windows socket API? Which functions from Winsock API are used to provide each of these I/O handling modes? What parameters do they expect?
   b) Compare how error handling facility in implemented in Berkeley socket API and Windows Socket API?

7. Write short notes on (**Any Two**):
   a) Network Diagnostic Tools
   b) TFTP
   c) IP Packet Format

POKHARA UNIVERSITY

Level: Bachelor | Semester: Fall | Year : 2019
Programme: BE | Full Marks: 100
Course: Network Programming | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.
Attempt all the questions.

1. a) What is network programming? Explain different communication protocols used in networking. 8
   b) Explain the client/server mode of communication. Also draw the TCP state transition diagram. 7
2. a) Why do we need byte ordering in network programming? Differentiate little endian and big endian. Explain different address conversion function with prototype and return type of respective functions. 8
   b) What is socket API? Explain socket address structure for IPv4 and IPv6.
3. a) Write outlines code to create listen descriptor and connected descriptor in case of TCP and explain their importance in program. 8
   b) What is input/output model? Explain asynchronous model.
4. a) What are the major differences of wait () and waitpid ()? Explain the mechanism to handle multiple client in Unix network programing with suitable sample code (consider simple client server chat) 8
   b) Compare **close()** function and **shutdown()** function with outline code.
5. a) Explain windows SOCKE library along with suitable diagram.
   b) What are the differences between Unix socket and windows socket? Explain the significance of setup and cleanup functions in windows socket with function prototype and required structure definition. 8
6. a) What is overlapped IO? Explain different winsock functions that supports synchronous and asynchronous IO.
   b) Compare static and dynamic link library in case of windows. 8
7. Write short notes on: **(Any two)** 2×5
   a) Telnet and rlogin
   b) ifconfig/ipconfig
   c) TFTP

POKHARA UNIVERSITY

Level: Bachelor Semester: Spring Year : 2019
Programme: BE Full Marks: 100
Course: Network Programming Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Define Computer network and network programming? Explain the various states used in TCP state transition diagram with supporting figure. 7
   b) What do you mean by Active Network Model? Compare peer to peer and Client/Server based Model on the basis of communication, cost and security. 8
2. a) What is value result argument? Compare bzero () with memset (). 8
   b) What is socket API? Explain socket address structure for IPv4 and IPv6. 7
3. a) What is I/O model? Compare Blocking and nonblocking I/O model with diagram. 7
   b) What is the purpose of bind () function? What will be the outcomes if we do not specify IP address, port, both, or neither. 8
4. a) What is file descriptor passing? Explain advantages of UNIX Domain protocol. 7
   b) What is daemon process? Explain how to demonize a process. 8
5. a) Explain WSAData ,WSACleanUP,WSAStartup and closesocket() with help of suitable code. 8
   b) Differentiate load time dynamic linking and run time dynamic linking. Explain winsock architecture. Explain WSAAsyncSelect() function. 7
6. a) What are the differences between Unix socket and windows socket? Explain the significance of setup and cleanup functions in windows socket with function prototype and required structure definition? 8
   b) What is overlapped socket? Compare overlapped socket system call with blocking socket System call along with the help of Outline code. 7
7. Write short notes on: (Any two)
   a) rlogin
   b) ipconfig/ifconfig and netstat
   c) Concurrent server in unix