

Code.No: 07A7EC19

R07

SET-1

IV B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
NETWORK PROGRAMMING
(COMMON TO CSE, IT)

Time: 3hours**Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

- - -

1. a) With the help of a neat sketch explain the steps and buffers involved when an application writes to a TCP socket.
b) Summarize the protocol usage of any 4 common Internet applications. [8+8]
2. a) What is the purpose of fork function? Give the syntax and explain with a program.
b) Make a comparison between the iterative server and concurrent server. [8+8]
3. a) What is a signal? What are the three choices for signal disposition? Explain each one in detail.
b) Explain the normal start up of TCP client and server. [8+8]
4. a) What are the four different purposes served by SO_REUSEADDR option?
b) Enumerate on POSIX signal Handling. [8+8]
5. Explain the UDP client-server application for echoing the text given by the user. [16]
6. Explain the following functions:
a) gethostbyname b) uname. [8+8]
7. a) Draw the message queue structure in kernel and explain.
b) What is a semaphore? Explain how locking can be achieved with semaphores. [8+8]
8. a) With a neat diagram explain the RPC execution.
b) Describe the numerous versions of line discipline modules. [8+8]

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1. a) Compare UDP with TCP protocols.
b) What are the limitations on the size of the IP datagram? Also explain how they affect the data transmitted by an application. [8+8]
2. a) Give the IPv4 socket address structure and explain the significance of each field.
b) Explain how multiple clients are handled by a concurrent server. [8+8]
3. a) Briefly describe Posix Signal Semantics.
b) Explain what happens when the server host crashes? [8+8]
4. a) Explain the purpose and syntax of *select* system call. What conditions cause *select* to return “ready” for sockets?
b) Explain the following Generic Socket Options:
i) SO_DONTROUTE ii) SO_ERROR. [8+8]
5. a) Write the function to echo lines on a datagram socket and explain.
b) Discuss the effect of UDP not having any flow control. [8+8]
6. a) What are the four types of network-related information that an application might want to look up? Also mention the keyed lookup functions provided by them.
b) Explain the role of a resolver with a neat diagram that depicts the typical arrangement of applications, resolvers and name servers. [8+8]
7. a) What is a pipe? Explain with an example how IPC is done using pipes.
b) How are FIFOs different from Pipes? [8+8]
8. a) Show a picture of all the processes involved in the 4.3BSD remote login client and server side and explain.
b) “4.3BSD considers a terminal device in one of three modes.” Explain them. [8+8]

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SET-3

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1. a) With the help of a state transition diagram explain the operation of TCP with regard to connection establishment and connection termination.
b) Give a note on UNIX POSIX standards. [10+6]
2. a) Give the IPv4 socket address structure and explain the significance of each field.
b) Explain how multiple clients are handled by a concurrent server. [8+8]
3. Write the programs for TCP echo server and TCP echo client and explain. [16]
4. a) Make a comparison of the five different I/O models in UNIX.
b) What socket options are processed by IPv6 with a level of IPPROTO_IPv6? Explain. [8+8]
5. Write the programs for UDP echo server and UDP echo client and explain. [16]
6. a) Explain the types of Resource Records.
b) With an example explain the use of uname function. [8+8]
7. a) What are the rules a FIFO should follow for reading and writing?
b) Explain how semaphores are used to synchronize the access to the shared memory segments. [4+12]
8. Discuss in detail the issues to be considered to make the use of RPC transparent to the applications. [16]

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1. a) Draw the OSI seven layered model along with the approximate mapping to the Internet protocol suite. Also explain the functions offered by each layer.
b) Explain how TCP connection is established using Three-way handshake protocol. [8+8]
2. Write the syntax and explain each of the following socket functions:
a) connect b) listen
c) accept d) bind. [4+4+4+4]
3. a) Write the client processing loop that read a line of text from standard input, write it to the server, read back the server's echo of the line, and output the echoed line to standard output.
b) Explain the steps involved in normal termination of TCP client and server. [8+8]
4. a) Make a comparison of the five different I/O models in UNIX.
b) What socket options are processed by IPv6 with a level of IPPROTO_IPV6? Explain. [8+8]
5. a) Give the IPv4 socket address structure and explain the significance of each field.
b) Explain how multiple clients are handled by a concurrent server. [8+8]
6. a) Explain the purpose of RES_USE_INET6 Resolver option.
b) Discuss the use of gethostbyname function with an example. [8+8]
7. Discuss at length System V IPC. [16]
8. a) What are the functions done by a terminal line discipline module?
b) Give a note on Pseudo-Terminals. [8+8]
