CODE NO: 07A7EC19

R07

SET - 1

IV B.TECH - I SEMESTER EXAMINATIONS - MAY, 2011
NETWORK PROGRAMMING
(COMMON TO COMPUTER SCIENCE AND ENGINEERING, INFORMATION
TECHNOLOGY)

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

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1.   Explain with a suitable diagram the socket system calls used for connection oriented
      communication between a client and a server.   [16]

2. a) Explain with diagrams the following I/O models provided by Unix:
       i)   Blocking I/O model.   ii)   Non blocking I/O model.
   b) Explain the functionality provided by poll function.   [8+8]

3. a) Compare the IPC functionality provided by pipes and message queues.
   b) Explain file locking with semaphores.   [8+8]

4. a) Write a sample to discuss the lack of flow control with UDP.
   b) Distinguish between recvfrom and read functions.   [8+8]

5.   Explain in detail the various issues needed to be considered to make the use of RPC
      transparent to the application.   [16]

6. a) Explain how the signals are handled in Unix.
   b) Consider the TCP Echo Server and TCP Echo Client application and discuss what
       happens to the client when the server process crashes.   [8+8]

7. a) Explain the differences among the exec family of functions of Unix.
   b) Discuss how the getaddr info function handles IPV6 addresses.   [8+8]

8.   Write notes on the following:
      a)   OSI model.
      b)   Types of Resources Records (entries in the DNS).   [8+8]

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SET - 2

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TECHNOLOGY)

Time: 3hours   Max. Marks: 80

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. a) Describe the syntax and purpose of the each of the following:
   i)   Socket   ii)   Bind   iii)   Accept.
   b) Explain briefly the byte order conversion functions.   [8+8]

2. a) Explain with a diagram signal driven I/O model.
   b) What are the differences in functionality between the poll and select functions?
                                                                         [8+8]

3. a) What are named and unnamed pipes? How are they created?
   b) Explain in detail how the IPC functionality is provided by message queues.
                                                                         [8+8]

4. a) Explain with a diagram the steps that normally take place in a remote procedure call.
   b) Describe the getaddr info function as applicable to IPV6.   [8+8]

5. a) Explain with a sample code how a connected UDP socket can be used to determine the outgoing interface.
   b) Discuss the lack of flow control with UDP with a suitable code.   [8+8]

6. a) What are signals? Describe the methods of handling SIGCHLD signals.
   b) What are the differences between concurrent servers and iterative servers? Give examples of services handled in iterative and concurrent fashions.   [8+8]

7. a) Describe the connection establishment handshake of TCP.
   b) Discuss the uses of the following TCP Socket options:
   i)   TCP_MAXSEG   ii)   TCP_NODELAY.   [8+8]

8. Write notes on the following:
   a) Pseudo-Terminals.
   b) Crashing and Rebooting of Server Host in TCP Client/Server application.
                                                                         [8+8]

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SET - 3

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NETWORK PROGRAMMING
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TECHNOLOGY)

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

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1.   Explain with a suitable diagram the socket system calls used for connection less communications between a client and a server.   [16]

2. a)   Explain with diagrams the following I/O models provided by Unix:
        i)   I/O multiplexing model.
        ii)   Signal-Driven I/O model.
   b)   Write a sample code to describe the getsockopt () and setsockopt () functions.
                                                                                        [8+8]

3. a)   What are the differences between named and unnamed pipes in Unix?
   b)   Write a program to transfer a message between two processes using a message queue.
                                                                                        [8+8]

4. a)   What are the various functions that can be done by a line discipline module?
   b)   Discuss with a diagram an actual remote login process.   [8+8]

5. a)   Write a simple UDP program that uses connect to determine the outgoing interface.
   b)   What are the differences between a close function and shutdown function?
                                                                                        [8+8]

6. a)   What are signals? What are the different ways in which a process can respond to the signals?
   b)   Consider the TCP Echo server and TCP Echo Client applications and discuss what happens to the client when the server host crashes.   [8+8]

7. a)   Under what conditions is a socket said to be ready for reading and writing data.
   b)   Explain briefly how the services provided by TCP to an application are different from the services provided by UDP.   [8+8]

8.   Write notes on the following:
        a)   TCP connection establishment.
        b)   Gethostbyname function.   [8+8]

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SET - 4

IV B.TECH - I SEMESTER EXAMINATIONS - MAY, 2011
NETWORK PROGRAMMING
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Time: 3hours **Max. Marks: 80**

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. a) Compare the services provided by TCP and UDP protocols.
   b) Explain with a diagram how TCP establishes connections using a three-way handshake.

   [8+8]

2. a) Explain with diagrams how the socket address structures are passed from process to kernel and kernel to process.
   b) Describe briefly how to write a concurrent server under UNIX. [8+8]

3. Consider the TCP Echo client and TCP Echo server applications and discuss what happens to the client in the following situations:
   i) When the server process crashes.
   ii) When the server host crashes. [8+8]

4. a) Explain with diagrams the following I/O models provided by Unix:
   i) I/O multiplexing model.
   ii) Asynchronous I/O model.
   b) List the various socket options available for IPV6. [8+8]

5. a) Draw a diagram showing the typical scenario that takes place for a UDP Client/Server communication.
   b) Explain the differences between send to and write functions. [8+8]

6. a) Draw a diagram that shows a typical arrangement of clients, resolvers and name servers.
   b) Describe the get host by name and get host by addr functions. [8+8]

7. a) Write a program to transfer a message between two processes using a FIFO File (named pipe).
   b) What are the differences between Advisory locking and Mandatory locking?

   [8+8]

8. Write notes on the following:
   a) RPC Transparency issues.
   b) Terminal modes. [8+8]

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