Your Roll No. ....

1736

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MCA / IV Sem.

Paper MCA - 403

Network Programming

(Admissions of 2007 & onwards)

Time : 2 Hours   *Maximum Marks : 50*

(Write your Roll No. on the top immediately

on receipt of this question paper.)

Attempt **all** questions. Parts of a

question must be answered together.

1. (a) Explain by giving two complete prototypes of system calls. What is meant by value-result arguments ? Is the function get host name () a value-result argument. ?   5

    (b) Write a small program to find out what all services are running on your local system. Print the service names along with the port numbers.   5

2. (a) Compare the functioning of wait () and waitpid () when

(i) No children have terminated

(ii) Some children have terminated

(iii) All children have terminated

Write the final version of a signal handler used to handle zombies

5

(b) Write a program to print the IP Address and port number of a server, which has binded to a wildcard port and IP Address. 5

3. (a) Explain the usage of the following socket options in short :

(i) SO-REUSEADDR

(ii) SO-LINGER   5

(b) Write a code snippet which detects the reception of a FIN segment from the other side.   2

(c) Explain the working of trace route command.   3

4. (a) Write a program that prints the default TCP and UDP send and receive buffer sizes.   5

(b) The network 134.122.0.0/16 has been divided into / 19 networks.

(i) Determine which network the IP Address 134.122.67.124 belongs to ?

(ii) Find the broadcast address of each network.   2

(c) Explain what is connected UDP. Does a 3- way handshake take
place in connected UDP ?   3

5. Write only a complete server program with the following
specifications :

(i)   server is concurrent.

(ii) The server runs at IP Address 1.2.3.4 and port 71

(iii) The server has exercised the SO-REUSEADDR option.

(iv) The server is capable of handling zombies.

(v)   When a client connects, it returns the current time and the
number of clients already connected to it plus one.

(vi) Thereafter it acts as a normal echo Server

(vii) If the client sends a word which has a backslash preceding it
then that is taken as a command. For example \rm - i a. c is a
command for deleting a. c file on server. The server should
execute this command on its side without bothering what the
command is.   10