* S F - 7 7 0 3 / 2 0 0 *

SF-7703

B. E. - IV (Sem. VIII) (Computer) Examination

May / June - 2011

Distributed Programming Environment

(ELective - II)

Time : **3** Hours] [Total Marks : **100**

Instruction :

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ B. E. - 4 (SEM. 8) (COMPUTER)

Name of the Subject :

☛ DISTRIBUTED PROGRAMMING ENVIRONMENT (ELECTIVE - II)

☛ Subject Code No. : 7 7 0 3 ☛ Section No. (1, 2,.....) : 1&2

Seat No. :

Student's Signature

SECTION - I

1 (a) Answer the following : **10**

(i) Define IPC. **1**

(ii) What will be the effect of calling fork on pipe type of IPC ? **1**

(iii) Why FIFO is opened either read-only or write-only mode ? **1**

(iv) _____ function is used to open message queue. **1**

(v) What do you mean by Race condition ? **1**

(vi) Pipe can be used only between processes that have a parent process in common. State True/False and justify your answer. **2**

(vii) Explain mkfifo( ) function. **3**

(b) Answer the following : **8**

(i) Discuss different ways of persistence of IPC objects.

(ii) Explain working of CORBA.

2 Answer the following : (any two) **16**

(i) Write a simple client server program using message queue that work as follows.

CLIENT

User will send some number and waits for server reply from server.

When the reply is received it will print those results.

SERVER

It will wait until data are received from CLIENT. When some number is received server will calculate root of the number and will return the root of the number of the CLIENT.

(ii) Write a code to create a system V shared memory segment of a specified size.

(iii) Enlist and explain issues to be considered in distributed system.

3 Answer the following : (any four) 16

(i) Write the msquid_ds structure and write the significance of each member of the structure.

(ii) Explain file locking with example for Binary Semaphores.

(iii) Explain the use of stub, skeleton, marshaling in RMI.

(iv) Explain the problems associated with iterative servers.

(v) Discuss Agreement problem.

SECTION - II

4 (a) Answer the following : **10**

(i) Give 2 reasons for the TIME_WAIT state.

(ii) Differentiate between inet_aton and inet_pton.

(iii) Define socket pair and give its structure.

(iv) Enlist and explain the queues maintained by the kernel for backlog argument in listen ( ).

(v) Explain the functionalities of select and poll.

(b) Write a TCP socket program for the following : **15**

Server has a file valideIPs.txt which is having entries for valid client IP addresses. Client when connects, IP address is passed with it, if the IP is available in the file, the server asks for enter command. Client enters whatever command; the output is being displayed as client's prompt. Server should be accessed concurrently. Server stores all client commands in CIPindex_history.txt (C1.txt) at server. IPindex is the serial no. of client in validate IPs.txt file.

e.g. Client : contents

server detects the IP address on connection. After validating IP in validate IPs.txt Server: Valid Client, enter command.

Client: ls

Server : sends the list of file to client

At Client : file.txt, test.sh, etc. and in next line Enter command.

Client : who

At Client : o/p of who commands is displayed.

5 (a) Define daemon. Write a daemon program of your choice. **8**

(b) Compare and contrast I/O models. **7**

OR

(b) Write the importance of UDP client using connect( ). Write a program to demonstrate the same. **7**

6 Attempt any two of the following : **10**

(i) Write a program to verify the sending of data through UDP.

(ii) Write a program to demonstrate the use of getservbyname(), getservbyport() and gethostbyname().

(iii) Enlist and explain socket options.
