E 8231

M.C.A. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Third Semester

CA 234 — UNIX AND NETWORK PROGRAMMING

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the use of *fcntl* function?

2. What is symbolic link?

3. How is a new process created in Unix?

4. When is a process called as an orphan?

5. What is the problem with System V IPC?

6. What is binary semaphore?

7. What is the use of REUSEADDR socket option?

8. Give the syntax of the accept system call.

9. What ICMP messages are used by traceroute tool?

10. How to check the availability of host in a network?

PART B — (5 × 16 = 80 marks)

11. (i) List and explain the similar features of System V IPC types. (5)

(ii) Give the format of the structure assigned for the shared memory segment. Explain the functions required to access the shared memory. (3 + 8 = 11)

12. (a) (i) What is the use of sticky bit? (3)

(ii) Write a note on file access permission bits. How does they effect on a file and a directory? (7)

(iii) What are the file types supported by Unix? Write a program to print the type of the accepted file name. (6)

Or

(b) Explain the system calls for accessing streams. (16)

13. (a) (i) How is vfork different from fork system call? (4)

(ii) Explain the use of wait and waitpid functions. Give the syntax of the two functions. (6)

(iii) Explain the macros used to examine the termination status returned by wait and waitpid functions. (6)

Or

(b) (i) Explain the data structures required to implement sessions and process groups. (10)

(ii) Write a note on signals. (6)

14. (a) (i) Explain the steps involved in creating a TCP server. Explain the relevant functions with syntax. (10)

(ii) What is the need for inet_pton and htons function? (6)

Or

(b) (i) Write a note on socket options. (6)

(ii) Explain how asynchronous I/O multiplexing is implemented in TCP. (10)

15. (a) Write a program in C to capture all ICMP messages and print the IP header and ICMP header. (16)

Or

(b) (i) Write a UDP chat application. (10)

(ii) Explain the operation of traceroute tool. (6)
