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**K 3539**

M.C.A. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Fourth Semester

MC 1751 — UNIX AND NETWORK PROGRAMMING

(Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the use of sticky bit?
2. Which is the file used by UNIX system to keep track of users currently logged in?
3. What is the use of setjmp and longjmp functions?
4. What is the difference between fork and vfork?
5. What are the problems associated with system V IPC?
6. What happens if the argument to popen is a non existing command?
7. What is the use of SO\_REUSEADDR option?
8. Give the syntax of inet\_pton() function. What is the use of the function?
9. What ICMP messages are used by traceroute?
10. What is the use of 'listen' system call?

PART B — (5 × 16 = 80 marks)

11. (a) (i) How is file sharing between two processes done in Unix ? Explain the necessary data structures. (9)
- (ii) What are the different file types supported by UNIX system? (7)

Or

- (b) (i) Draw the Unix file system layout and explain the fields. (8)  
(ii) List the various system data files that will be used by UNIX systems and explain the functions required to access them. (8)

12. (a) (i) Explain the various 'exec' functions and relate them. (10)  
(ii) What are the various accounting information maintained for various processes? (6)

Or

- (b) (i) What are signals? (5)  
(ii) Under what conditions signals are generated? (5)  
(iii) In what ways signals are handled? (6)

13. (a) (i) What are pipes? Explain the advantages, limitations of pipes. (8)  
(ii) Give an example application where pipe can be used. (8)

Or

- (b) Write short notes on System V IPC. (16)

14. (a) (i) What are the various ways to get and set options that affect a socket? (4)  
(ii) Write short notes on any three IPv4 socket options. (12)

Or

- (b) (i) What is the use of select function? Give the syntax of select function and give an example scenario where select can be used. (11)  
(ii) What are the features provided by raw socket which are not provided by TCP or UDP? (5)

15. (a) (i) Explain the operation of ping and trace route tools. (8)  
(ii) Write a program to implement UDP echo client server. (8)

Or

- (b) Develop an application to calculate the turnaround time between two machines. (16)