Reg. No. : | | | | | | | | | | | |

Z 3542

M.C.A. DEGREE EXAMINATION, MAY/JUNE 2008.

Fourth Semester

MC 1751 — UNIX AND NETWORK PROGRAMMING

(Regulation 2005)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. How is a system call different from Library function?

2. What is a symbolic link? What is its use?

3. What are the fields present in the environment list?

4. Name two signals that are raised on some software conditions.

5. What are the limitations of pipes?

6. What happens if the argument to popen is a non existent command?

7. What all packets are received by a raw socket waiting at protocol 6?

8. Name two UDP related socket options.

9. What ICMP messages are used by traceroute?

10. What is the difference between well-known port number and ephemeral port number?

PART B — ($5 \times 16 = 80$ marks)

11. (a) (i) What is the goal of buffering provided by standard I/O library? Explain the various types of buffering. (3 + 9)

(ii) Write a note on sticky bit. (4)

Or

(b) (i) Explain the various data structures maintained by the Unix system with regard to file sharing. (9)

(ii) How is remove ( ) different from unlink ( )? Give the syntax to both functions. (4 + 3)

12. (a) Explain with a block diagram how a C program is started and terminated with necessary function calls required. (16)

Or

(b) Write a note on the following with examples :

(i) Unreliable signals (5)

(ii) Reentrant functions. (5)

(iii) system ( ) function. (6)

13. (a) (i) Explain how semaphore provides access to a shared object for multiple process. (5)

(ii) Explain the various function calls defined in Unix for implementing semaphores. (11)

Or

(b) Explain the operation of pipe with an example application. (16)

14. (a) Write an application to send an IP datagram using RAW socket by filling the header and with a message. The receiver should echo back the message by altering the header. (8 + 8)

Or

(b) Write a note on the following function calls by specifying the syntax, operation and necessity. (4 × 4)

(i) listen ( )

(ii) inet_pton( )

(iii) setsockopt( )

(iv) recvfrom( )

15. (a) Explain the implementation of the tools, ping and traceroute. (16)

Or

(b) Write a TCP based echo server. Test its functionality with an echo client to calculate the RTT between the client and server. (16)

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