Question Paper Code: Z 5221

M.C.A DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Elective

MC 1642 – UNIX INTERNALS

(Regulation 2005)

Time : Three hours Maximum : 100 marks

Answer ALL questions

PART A – (10 X 2 = 20 marks)

1. Differentiate program from process.
2. Why the kernel is said to be non-preemptive?
3. What is super block?
4. Give syntax of any four system calls for the file system.
5. What is shell?
6. Mention the purpose of 'kill' system call.
7. What do you mean by memory-mapped I/O?
8. Define swapping.
9. How is sockets model related with networks?
10. What is the need of dummy process?

PART B – (5 X 16 = 80 marks)

11. (a) (i) Briefly explain the following:
    1. Interrupts and Exceptions. (4 marks)
    2. Processor execution levels (4 marks)

    (ii) What are the data structures contained by the kernel? Explain them. (8 marks)

    Or

    (b) What are the scenarios followed by kernel to allocate a buffer for a disk block? Explain them with relevant diagrams. (16 marks)

12. (a) (i) What is called in-core copy of the inode? What are the fields of it? (9 marks)

    (ii) State the algorithm for freeing inode. (7 marks)

    Or

(b) (i) What is called pipes? What are the functions of pipes? Explain the system calls and operations that are related to pipes. (12 marks)

(ii) Discuss about DUP system call. (4 marks)

13. (a) Write short notes on:

i. The U area. (4 marks)

ii. Process creation. (6 marks)

iii. System calls for time. (6 marks)

Or

(b) (i) List out the different states of process and explain the transition between the states with neat diagrams. (10 marks)

(ii) Explain about fair-share scheduler. (6 marks)

14. (a) What is demand paging? Explain. What are the data structures that support demand paging? (16 marks)

Or

(b) (i) What is called clists? How is it used by the kernel? (6 marks)

(ii) Explain the concepts of streams. (10 marks)

15. (a) (i) What is semaphore? What are the elements of semaphore in UNIX System V? Discuss them. (12 marks)

(ii) Discuss the problems of multiprocessor systems. (4 marks)

Or

(b) Describe the implementation of distributed systems concepts in satellite system. (16 marks)