Z 3510

M.C.A. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2006.

Second Semester

MC 1655 — OPERATING SYSTEMS

(Regulation 2005)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Differentiate between hard and soft Real Time Systems.

2.   What are system calls? How are they useful?

3.   What do you mean by swapping?

4.   Highlight the working of multilevel feedback queue scheduling algorithm.

5.   What is a semaphore?

6.   What is a safe state?

7.   Mention any two differences between logical and physical addresses.

8.   How is a lazzy swapper useful?

9.   What is an acyclic graph directory structure?

10. What is pluggable authentication module?

PART B — (5 × 16 = 80 marks)

11. (a) Highlight the salient features of the following operating systems :
         (i)   Time-Sharing system.
         (ii)   Multiprocessor system.
         (iii) Client Server system.
         (iv)   Real Time system.   (4 × 4 = 16)

                              Or

     (b) Discuss in detail the different types of system calls normally provided by
          an Operating system.   (16)

12. (a) (i) Write notes on process scheduling. (6)

 (ii) Explain how Inter process communication takes place between cooperating processes in an Operating system. (10)

Or

 (b) With examples, explain the working of different CPU scheduling algorithms. (16)

13. (a) (i) What is a Critical section problem? What are the requirements to be satisfied by any solution to this problem? (6)

 (ii) Explain the working of the different critical section solution algorithms applicable to two processes at a time. (10)

Or

 (b) (i) Explain the Banker's algorithm to avoid deadlock. (8)

 (ii) What are the methods to recover from deadlock? Explain. (8)

14. (a) Discuss Memory protection, memory allocation, and fragmentation in contiguous memory allocation scheme. (16)

Or

 (b) With appropriate diagrams, explain the working of any three page replacement policies in Virtual memory. (16)

15. (a) What are the different directory structures supported by the file system interface? Explain the working of each. (16)

Or

 (b) With examples, explain the different techniques used for free space management. (16)

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