Register No: …………………..

B.E DEGREE EXAMINATIONS: APRIL /MAY 2011

Sixth Semester

ELECTRONICS AND COMMUNICATION ENGINEERING

U07ECE03: Operating Systems

Time: Three Hours   **Maximum Marks**: **100**

Answer ALL Questions:-

PART A (10 x 1 = 10 Marks)

1. The interface between a process and the operating system is _____.

   A) System call   B) Hardware   C) Middleware   D) Process call

2. A characteristic of an on-line real time system is

   A) More than one CPU   B) No delay in processing

   C) Off line batch processing   D) All of these

3. Which of the following resources can cause deadlocks?

   A) Read only files   B) Shared programs   C) Printers   D) All of these

4. _____ threads are supported directly by the operating system.

   A) kernel   B) user   C) system   D) All of these

5. An address generated by the CPU is commonly referred as _____.

   A) logical address   B) physical address   C) static address   D) memory address

6. Demand paging system is _____.

   A) Similar to paging system with swapping   B) Process resides in secondary memory

   C) Both A and B   D) Never brings page in to memory

7. Disadvantages of single level directory is

   A) Confusion of file names between different users   B) Confusion of file data

   C) Confusion of file location   D) All the above

8. In a magnetic disk, data is recorded in a set of concentric_____ which are sub divided into _____

   A) Tracks, sectors   B) Period , Tracks   C) Sectors, Tracks D) Groups , Sectors

9. A temporary storage area attached to the CPU for I/O operation is a

   A) channel   B) Buffer   C) Core   D) Register

10. The coordinator is responsible for the following transaction

    A) Starting the execution of the transaction

    B) Processes that have not entered their critical section must pause frequency to assure other processes.

    C) Freedom from deadlock is ensured

    D) Mutual exclusion is obtained

PART B (10 x 2 = 20 Marks)

11. Write pros and cons of Hard Real time System and Soft Real time System

12. What is Context Switching?

13. What are the four conditions a system should posses in order to be termed as deadlock?

14. Define a thread. State the major advantage of threads.

15. What is thrashing?

16. What is Pre-Paging?

17. Differentiate between RAID level 0 and RAID level 1.

18. What is Polling?

19. Define DFS

20. What is Mutual Exclusion?

PART C (5 x 14 = 70 Marks)

21. a) (i) How do clustered systems differ from multi processor systems? (7)

    (ii) With clear justification explain which of the functionalities listed below are to be supported by real time system and hand held system? (7)

        Batch Programming

        Virtual Memory

        Time Sharing

(OR)

b) Consider the following 5 processes with the length of the CPU burst time given in milli seconds.

Process	Burst Time
P1	10
P2	29
P3	3
P4	7
P5	12

Consider the FCFS, Non- Preemptive shortest job first (SJF), Round Robin (RR) (quantum=10 milli seconds) scheduling algorithms. Illustrate the scheduling using Gantt chart. Which algorithm will give the minimum average waiting time?

22. a) (i) State the critical section problem. Discuss the 3 requirement that a solution to the critical section problem must satisfy. (7)

    (ii) Explain the structure of a semaphore, wait and signal to overcome busy waiting.(7)

(OR)

b) Explain the implementation of Producers/Consumers problem using monitor.

23. a) Discuss the advantages of paging memory managements and the conversion of logical address into physical address with necessary hardware.

(OR)

b) (i) Discuss the following page replacement algorithms, with a suitable page reference string   (i) LRU   (2)

(ii) FIFO   (2)

(iii) Optimal   (3)

(ii) Explain any two techniques for free space management.   (7)

24. a) Write short notes on (i) FCFS Scheduling (ii) SSTF Scheduling. (iii) SCAN Scheduling   (iv) C-SCAN Scheduling

(OR)

b) (i) Explain in detail, various RAID organization and levels.   (10)

(ii) Write a brief note on DMA.   (4)

25. a) (i) Write about remote file access in distributed file system.   (7)

(ii) Briefly explain Election Algorithms.   (7)

(OR)

b) Explain how mutual exclusion, atomicity and concurrency control implemented in distributed environment.

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