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Register Number: ……

B.E/B.TECH DEGREE EXAMINATIONS: MAY 2015

(Regulation 2009)

Fifth Semester

CSE112: OPERATING SYSTEMS

(Common to CSE & IT)

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The dispatcher
   a) Actually schedules the tasks into the processor
   b) Puts tasks in I/O wait
   c) Is always small and simple
   d) Never changes task priorities
2. Program in execution is known as
   a) Compaction
   b) Process
   c) Thread
   d) Segmentation
3. Fork is
   a) The dispatching of a task
   b) The creation of a new process
   c) The creation of a new job
   d) Increasing the priority of a task
4. _____ is a technique of gradually increasing the priority of processes that wait in the system for a long time.
   a) Multithreading
   b) Scheduling
   c) Aging
   d) Context switching
5. Banker's algorithm deals with _____.
   a) Deadlock detection
   b) Deadlock avoidance
   c) Deadlock recovery
   d) Deadlock prevention
6. _____ is a situation where processes wait indefinitely within the semaphore.
   a) Starvation
   b) Cascading Termination
   c) Process cooperation
   d) Deadlock
7. Which of the following manages file metadata information?
   a) Logical file system
   b) File-organization module

c) Basic-file system d) I/O control

8. TLB stands for _____.

a) Transaction Limited Buffer b) Transaction Logical Buffer

c) Translation Lookaside Buffer d) Translation Location Buffer

9. Which of the following is a counting-based page replacement method?

a) LFU b) LRU

c) OPR d) FIFO

10. The time for the disk arm to move the heads to the cylinder containing the desired sector is called _____.

a) Rotational latency time b) Access time

c) Transfer Time d) Seek Time

PART B (10 x 2 = 20 Marks)

11. What is a system call?
12. Define context switch.
13. Distinguish between user threads and kernel threads.
14. How busy waiting can be avoided?
15. What do you mean by circular wait condition?
16. Compare internal and external fragmentation.
17. What do you mean by copy-on-write?
18. Mention the various file attributes.
19. What are the advantages of Indexed allocation method of allocating disk space?
20. Why disk scheduling is important?

PART C (5 x 14 = 70 Marks)

21. a) Explain about inter-process communication.

(OR)

b) (i) Explain the various states of a process. (6)

(ii) Describe about the various OS services. (8)

22. a) Consider the following set of processes, with the length of the CPU-burst time given in milliseconds

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

The processes are assumed to have arrived in order P1, P2, P3, P4, P5, all at time 0.

(i) Draw four Gantt charts illustrating the execution of these processes using FCFS, SJF, a non-preemptive priority (a smaller priority number implies a higher priority), and RR (quantum=1) scheduling.

ii) What is the turnaround time and waiting time of each process for each of the above scheduling algorithm?

(OR)

b) (i) Explain about the various multithreading models. (8)

(ii) Explain about TestAndSet hardware instruction for implementing mutual-exclusion. (6)

23. a) (i) Explain about the necessary conditions for a deadlock to occur (6)

(ii) Discuss the techniques involved in deadlock recovery. (8)

(OR)

b) (i) Explain any two techniques for structuring the page table. (7)

(ii) Explain about the paging concept. (7)

24. a) Consider the page-reference string : 2 3 2 1 5 2 4 5 3 2 5 2. How many page faults would occur for the FIFO, LRU and Optimal replacement algorithms, assuming three and four frames?

(OR)

b) Discuss the various schemes for defining the logical structure of a directory

25. a) What are the various free space management techniques? Explain.

(OR)

b) (i) Explain any three disk scheduling algorithms with an example. (8)

(ii) Discuss about the process management in Linux system. (6)

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