

Tribhuvan University

ASIAN SCHOOL OF MANAGEMENT

Pre- Board Examination -2013

Bachelor Level/ Second Year/ Third Semester/Science
Computer Science and Information Technology (C. Sc. 203)
(Operating System)

Full Marks: 60
Pass Marks: 24
Time: 3 Hours

Group-A

Attempt any two questions:

(2x10=20)

1. Define the term semaphore. How does semaphore help in dining philosophers problem? Explain.
2. Consider the following page reference string : 1, 2, 3, 4, 2, 1, 5, 6, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. How many page fault would occur for the LRU replacement, FIFO replacement and optimal replacement algorithms. Assuming three, five or seven frames? Remember all frames are initially empty, so your first unique pages will all cost one fault each.

OR

Write short notes on:

- a. Least recently used page replacement algorithm
 - b. Segmentation
 - c. Associative memory
3. Suppose that a disk drive has 100 cylinders, numbered 0 to 99. The drive is currently serving a request at cylinder 43, and previous request was at cylinder 25. The queue of pending request, in FIFO order is:
86, 70, 13, 74, 48, 9, 22, 50, 30
Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all pending requests for each of the following disk scheduling algorithms?
a. FCFS b. SCAN

Group B

Attempt any eight questions:

(8x5=40)

4. What is an operating system? Differentiate between time sharing and real time operating system.
5. Why thread is necessary? In which circumstances user-level thread is better than Kernel level thread?
6. Give briefly at least three different ways of establishing inter-process communication?
7. Explain the difference between Busy Waiting and Blocking.
8. What is deadlock? State the conditions necessary for deadlock to exist. Give reason, why all conditions are necessary
9. What do you mean by memory fragmentation? Distinguish between the internal and external fragmentation.
10. When do page fault occur? Describe the actions taken by an OS when a page fault occurs.
11. Explain the mapping of virtual address to real address under segmentation.
12. Explain the disk management with example.

***** Best of Luck *****