

Tribhuvan University
Institute of Science and Technology
2067
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Bachelor Level/ Second Year/ Third Semester/Science — Full Marks: 60
Computer Science and Information Technology (CSc 203) — Pass Marks: 24
(Operating System) — Time: 3 Hours

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

Section A

Attempt any two questions: **(2x10=20)**

13. What is system called? Explain the system call flow with the help of block a diagram.

OR

What do you mean by file system? What are the major difference between file system interface and file system implementation? Explain.

14. Write short notes on :
    (a) Disk scheduling algorithms
    (b) Error handling and formatting
    (c) File operations
15. 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.

Section B

Attempt any eight questions: **(8x5=40)**

16. Differentiate between personal computer operating systems and mainframe operating systems.
17. When do page fault occur? Describe the actions taken by an OS when a page fault occurs.
18. List four necessary conditions for deadlock. Explain each of them briefly what would be necessary (in the operating system) to prevent the deadlock.
19. Draw and describe the 3-state process model.
20. Does window have any concept of process hierarchy? How does parent control the child?
21. What is the problem with thread implementation in user space when any one of the threads gets blocked while performing IO operation?
22. Explain why two-level scheduling is commonly used.
23. What are the main motivations and issues in primary memory management?
24. Explain the disk management with example.

