

Northern India Engineering College

Shastri Park, Delhi

Department of Information Technology

Assignment 1 : Operating System (ETCS 212)

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Marks: 05

Instructions:-

- Last date of submission on or before 10/02/2014
- Only hand written assignments will be accepted
- No assignment will be accepted after due date.

- Q1. What is multiprogramming and explain how is it different from multiprocessing?
- Q2. Define the term overlays with suitable example.
- Q3. Differentiate between
- a) dynamic loading and dynamic linking.
 - b) hard real time system and soft real time system.
 - c) online system and real time system.
- Q4. When do page fault occur? Describe the action taken by the OS when a page fault occurs.
- Q5. What is Belady's Anomaly?
- Q6. Why are pages sizes always powers of 2?
- Q7. Consider a logical address space of 16 pages of 2048 words each, mapped onto a physical memory of 64 frames:
- a) How many bits are there in the logical memory?
 - b) How many bits are there in the physical memory?
- Q8. How many page faults occur for FIFO , LRU and Optimal Algorithms for the following reference string (frame available 4).

1, 2, 3, 4, 5, 3, 4, 1, 6, 7, 8, 7, 8, 9, 7, 8, 9, 5, 4, 5, 4, 2.

Q9. Consider the following segment table:

Segment	Base	Length
0	219	600
1	2300	14
2	90	100
3	1327	580
4	1952	96

What are the physical addresses for the following logical addresses? Also find out the segment faults if any.

- a) 0, 430
- b) 1, 10
- c) 2, 500
- d) 3, 400
- e) 4, 112

Q10. Describe the address binding performed by OS.

Q11. Write short notes on the following:-

- a) Contiguous Memory Allocation
- b) Page Replacement Algorithms
- c) Dynamic Partitioning
- d) Segmentation with Paging.

Reference:

1. Silberschatz and Galvin, "Operating System Concepts", Pearson, 5th Ed., 2001
2. Tannenbaum, "Operating Systems", PHI, 4th Edition, 2000.