Quiz 5

Course: Operating Systems	Course Code: CS 2006
Section: BCS-4F	Total Marks:10
Name:	RollNo:

Question 1: [4 Marks]

A process has been allocated 3 page frames. Assume that none of the pages of the process are available in the memory initially. The process makes the following sequence of page references (reference string): 1, 2, 1, 3, 7, 4, 5, 6, 3, 1
If optimal page replacement policy is used, how many page faults occur for the above reference string?

(A) 7
(B) 8
(C) 9
(D) 10

Question 2: [6 Marks]

A system uses 3 page frames for storing process pages in main memory. By using FIFO page replacement algorithm find the number of page faults. Also if we increase the frames to 4, the belady's anomaly will occurs or not?

6, 7, 8, 9, 6, 7, 1, 6, 7, 8, 9, 1

Quiz # 5 Solution.

a)

	1	2	1	3	7	4	5	6	3	1
F/H	F	F	H	F	F	F	F	F	H	H
F_1	1	1	1	1	1	1	1	1	1	1
F_2		2	2	2	7	4	5	6	6	6
F_3				3	3	3	3	3	3	3

Option (A) Page Faults = 7

b)

	6	7	8	9	6	7	1	6	7	8	9	1
F/H	F	F	F	F	F	F	F	H	H	F	F	H
F_1	6	6	6	9	9	9	1	1	1	1	1	1
F_2		7	7	7	6	6	6	6	6	8	8	8
F_3			8	8	8	7	7	7	7	7	9	9

Page Faults = 9

Increase frames to 4.

	6	7	8	9	6	7	1	6	7	8	9	1
F/H	F	F	F	F	H	H	F	F	F	F	F	F
F_1	6	6	6	6	6	6	1	1	1	1	9	9
F_2		7	7	7	7	7	7	6	6	6	6	1
F_3			8	8	8	8	8	8	7	7	7	7
F_4				9	9	9	9	9	9	8	8	8

Page Faults = 10

Yes, belady's anomaly will occur because increasing the number of frames also increased the number of page faults.