Exercise 4 - Solution

Q1

LRU

Query:	9	5	1	0	5	6	5	4
Buffer 1:	9	9	9	0	0	0	0	4
Buffer 2:	N	5	5	5	5	5	5	5
Buffer 3:	N	N	1	1	1	6	6	6
Page Fault:	F	F	F	F		F		F
Number of Page Fault:	6							

MRU

Query:	9	5	1	0	5	6	5	4
Buffer 1:	9	9	9	9	9	9	9	9
Buffer 2:	N	5	5	5	5	6	5	4
Buffer 3:	N	N	1	0	0	0	0	0
Page Fault:	F	F	F	F		F	F	F
Number of Page Fault:	7							

FIFO

Query:	9	5	1	0	5	6	5	4

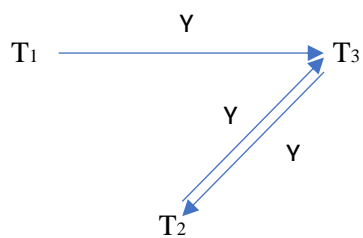|								
Buffer 1:	9	9	9	0	0	0	0	4
Buffer 2:	N	5	5	5	5	6	6	6
Buffer 3:	N	N	1	1	1	1	5	5
Page Fault:	F	F	F	F		F	F	F
Number of Page Fault:	7							

Q2

Suppose we have n frames in the buffer. The request frame sequence is

1, 2, 3, 4, ..., n, n+1, n, n+1, n, n+1, ...

We have to replace a frame every time when n or n+1 is requested.

Q3

The precedence graph has an edge, from *T1* to *T3*, because of the conflict between T1:R(Y) and T3:W(Y). It also has an edge, from *T2* to *T3*, because of the conflict between the first T2:R(Y) and T3:W(Y). It also has an edge, from *T3* to *T2*, because of the conflict between T3:W(Y) and the second T2:R(Y).

Q4

1)

T1, T2: redo

T3: undo

2)

T2: redo

T3: undo