ID: 0222210005101101(C)

Q-01

Here, hit ratio $\alpha = 80\% = 0.8$

time to access memory, $t = 200 \times 10^{-9}$ s

time to access TLB, $\lambda = 01 \times 10^{-9}$ s

Now,

$$EAT = \alpha(\lambda + t) + (1-\alpha)(\lambda + 2t)$$

$$= 0.8\left(1\times10^{-9} + 200\times10^{-9}\right) + (1-0.8)\left(1\times10^{-9} + 2\times200\times10^{-9}\right)$$

$$= 277.6 \text{ ns}$$

Q-02

optimal page replacement

	5	6	7	0	7	1	2	0	1	7	1	0	6	3	4	3	0	1	4	2
f_1	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f_2		6	6	6	6	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4
f_3			7	7	7	7	2	2	2	7	7	7	6	3	3	3	3	1	1	2
	*	*	*	*	H	*	*	H	H	*	H	H	*	*	*	H	H	*	H	*

Hit ratio = $\frac{8}{20}$

Fault ratio = $\frac{12}{20}$