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Assignment 5

Q1)

First-fit:

Free	P10	P1	P3	Free	P11	Free	P12	Free	P13	P2	Free
100KB	10KB	212KB	112KB	176KB	20KB	200Kb	30KB	300KB	40KB	417KB	183KB

^{*}P4 cannot be placed

Best-fit:

ſ	Free	P10	P2	Free	P11	Р3	Free	P12	P1	Free	P13	P4	Free
	100KB	10KB	417KB	83KB	20KB	112KB	88KB	30KB	212KB	88KB	40KB	426KB	174KB

Worst-fit:

Free	P10	P2	Free	P11	Free	P12	Free	P13	P1	P3	Free
100KB	10KB	417KB	83KB	20KB	200KB	30KB	300KB	40KB	212KB	112KB	276KB

^{*}P4 cannot be placed

Next-fit:

Free	P10	P1	Free	P11	Free	P12	Free	P13	P2	Р3	Free
100KB	10KB	212KB	288KB	20KB	200KB	30KB	300KB	40KB	417KB	112KB	71KB

^{*}P4 cannot be placed

Q2)

Logical address	Page number	Page offset	Physical address
1027	2	3	3
2058	4	10	522
522	1	10	522
5	0	5	1541
2047	3	511	2559

Q3)

a)logical space = 32 bits (
$$2^{32}$$
) b)physical memory = $128MB = 2^{27}$
page size = $2KB = 2^{11}B$ entries = physical space/page size

#of entries = $2^{32}/2^{11} = 2^{21}$ entries = $2^{27}/2^{11} = 2^{16}$ entries

Q4)

a)page lookup + memory access =
$$2*150 = 300$$
ns
b) $(1-0.8)*(20+2*150) + 0.8*(20+150) = 200$ ns

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Q5)

LRU:

1	2	1	4	2	1	5	2	4	7	5	4	1	4	7	1	4	2	1	7
1	1		1			1		4	4	4		4		4			4		7
	2		2			2		2	2	5		5		7			2		2
			4			5		5	7	7		1		1			1		1
Number of page faults:				11															

Optimal:

1	2	1	4	2	1	5	2	4	7	5	4	1	4	7	1	4	2	1	7
1	1		1			5			5			1					1		
	2		2			2			7			7					7		
4			4			4			4					2					
Nur	Number of page faults:				7														