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Question 1:

First-fit:

Free 100K B	P10 30KB	P1 212K B	P3 112K B	Free 176K B	P11 30KB	Free 200K B	P12 30KB	Free 300K B	P13 30KB	P2 417K B	Free 183K B
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P4 is left out

Best-fit:

Free 100 KB	P10 30K B	P2 417 KB	Free 82K B	P11 30K B	P3 112 KB	Free 88K B	P12 30K B	P1 212 KB	Free 88K B	P13 30K B	P4 426 KB	Free 174 KB
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Worst-fit:

Free 100K B	P10 30KB	P2 417K B	Free 83KB	P11 30KB	Free 200K B	P12 30KB	Free 300K B	P13 30KB	P1 212K B	P3 112K B	Free 276K B
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P4 left out

Next-fit:

Free 100K B	P10 30KB	P1 212K B	Free 288K B	P11 30KB	Free 200K B	P12 30KB	Free 300K B	P13 30KB	P2 417K B	P3 112K B	Free 73KB
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P4 left out

Question 2:

Address	Page Number	Offset
2375	2	327
19366	18	934
30000	29	304
256	0	256
16385	16	1

Question 3:

Single-level page table:

$$512\text{MB} = 2^{29}$$

$$4\text{KB} = 2^{12}$$

$$2^{29}/2^{12} = 2^{17} = 131072$$

Inverted page table:

$$512\text{MB} = 2^{29}$$

$$4\text{KB} = 2^{12}$$

$$2^{29}/2^{12} = 2^{17} = 131072$$

Question 4:

a. $200\text{ns} + 200\text{ns} = 400\text{ns}$

b. $(0.75 \cdot 10) + (0.25 \cdot 400) = 107.5\text{ns}$

Question 5:

LRU

1	2	3	4	2	1	5	6	2	1	2	3	7	6	3	2	1	2	3	6
1	1	1	4	4	4	5	5	5	1	1	1	7	7	7	2	2	2	2	2
	2	2	2	2	2	2	6	6	6	6	3	3	3	3	3	3	3	3	3
		3	3	3	1	1	1	2	2	2	2	2	6	6	6	1	1	1	6

15 page fault

Optimal

1	2	3	4	2	1	5	6	2	1	2	3	7	6	3	2	1	2	3	6
1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	3	3	6
	2	2	2	2	2	2	2	2	2	2	2	7	7	7	2	2	2	2	2
		3	4	4	4	5	6	6	6	6	6	6	6	6	6	1	1	1	1

11 page fault