

## Assignment 5

Q1)

First-fit:

Free 100KB	P10 10KB	P1 212KB	P3 112KB	Free 176KB	P11 20KB	Free 200KB	P12 30KB	Free 300KB	P13 40KB	P2 417KB	Free 183KB
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\*P4 cannot be placed

Best-fit:

Free 100KB	P10 10KB	P2 417KB	Free 83KB	P11 20KB	P3 112KB	Free 88KB	P12 30KB	P1 212KB	Free 88KB	P13 40KB	P4 426KB	Free 174KB
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Worst-fit:

Free 100KB	P10 10KB	P2 417KB	Free 83KB	P11 20KB	Free 200KB	P12 30KB	Free 300KB	P13 40KB	P1 212KB	P3 112KB	Free 276KB
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\*P4 cannot be placed

Next-fit:

Free 100KB	P10 10KB	P1 212KB	Free 288KB	P11 20KB	Free 200KB	P12 30KB	Free 300KB	P13 40KB	P2 417KB	P3 112KB	Free 71KB
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\*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 =  $2^{32}/2^{11} = \underline{2^{21}} \text{ entries}$

$= 2^{27}/2^{11} = \underline{2^{16}} \text{ entries}$

Q4)

a) page lookup + memory access =  $2 * 150 = 300\text{ns}$

b)  $(1-0.8) * (20 + 2 * 150) + 0.8 * (20 + 150) = 200\text{ns}$

LRU:

Optimal:

[illegible]