COM S 352 Homework 7

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Question 1

- **First fit** $205 - 200 = 5, 170 - 15 = 155, 300 - 185 = 115, 155 - 75 = 80, 185 - 175 = 10$, No where to place 90MB so it is not satisfied

- **Best fit** $205 - 200 = 5, 40 - 15 = 25, 185 - 185 = 0, 100 - 75 = 25, 300 - 175 = 125, 125 - 90 = 35$

- **Worst fit** $300 - 200 = 100, 205 - 15 = 190, 190 - 185 = 5, 100 - 75 = 25, 185 - 175 = 10, 100 - 90 = 10$

Question 2

- **Contiguous memory allocation** The relocation register is required incase the entire program needs to be relocated.

- **Paging** Since this scheme allocates new pages it doesn't need to relocate the program space.

Question 3

- **Contiguous memort allocation** This scheme suffers from external fragmentation because as address spaces become allocated holes could develop as old processes finish and new ones start.

- **Paging** This scheme sufferes from internal fragmentation because this methods allocates in pages and if a page isn't fully utilized it will cause internal fragmentation.

Question 4

n = 10

- **a.**
  20,780 = 101000100101100
  Page number: 10100 = 20
  Offset: 0100101100 = 300

- **b.**
  197,018 = 110000000110011010
  Page number: 11000000 = 192
  Offset: 0110011010 = 410

- **c.**
  252,429 = 111101101000001101
  Page number: 11110110 = 246
  Offset: 1000001101 = 525

- **d.**
  1,647,822 = 110010010010011001110
  Page number: 11001001001 = 1609
  Offset: 0011001110 = 206

Question 5

2KB = 2048 = offset: 11

- **a.** 1,018 = 01111111010
  Offset: 01111111010
  Page Num: 0
  Frame for page 0 is 1
  Physical address = 101111111010 = 3066

- **b.** 6,976 = 1101101000000
  Offest: 01101000000
  Page Num: 11 = 3
  Frame for page 3 is 7
  111 + 01101000000 = 15168
  Physical address = 15168

Question 6

- **a.** $2048 * 4KB = 2^{11} * 2^{12} = 2^{23}$
  23 bits required

- **b.** $512 * 4KB = 2^9 * 2^{12} = 2^{21}$
  21 bits required