

## CSC 456 Operating Systems

Spring 2021

Instructor: Dr. Stephen Krebsbach

Assignment #5

26 points Due: April 22<sup>nd</sup> 9:00 AM (CST)

**Record Your answers using the Quiz for Assignment 5**

Please do the following.

- 1) (5 pts) What is the TLB “Reach” if the Number of entries is 10 and the size of a page is 1024 1-byte words.
  - a) 10240 bytes
  - b) 10 bytes
  - c) 102.4 bytes
  - d) 1024 bytes
- 2) (5 pts) What is goal when setting the size of the “delta” (  $\Delta$  = ? ) as part of the Working Set model?
  - a) to encompass the entire locality (not too many or too small)
  - b) use all free frames
  - c) set the number of Page Faults
  - d) To set the number of different windows used
- 3) (2 pts) Assuming a 1-KB (1024 bytes) page size, what is the page number (p) and offset(d) for the following address reference (values are in decimal) - Address : **1025**
  - a) p = 1 d = 1
  - b) p = 10 d = 25
  - c) p = 102 d = 5
  - d) p = 2 d = 24
- 4) (2 pts) Assuming a 1-KB (1024 bytes) page size, what is the page number (p) and offset(d) for the following address reference (values are in decimal) - Address : **2450**
  - a) p = 2 d = 402
  - b) p = 1 d = 302
  - c) p = 102 d = 5
  - d) p = 2 d = 24

- 5) (2 pts) Consider the logical address space of 32 pages of 1024 words each, mapped into a Physical memory of 64 frames. How many **bits** are there in the **logical** address?
- a) 15
  - b) 32
  - c) 32,768
  - d) 64
- 6) (2 pts) Consider the logical address space of 64 pages of 1024 words each, mapped into a Physical memory of 32 frames. How many **bits** are there in the **Physical** address?
- a) 15
  - b) 32
  - c) 128
  - d) 65,536

- 7) (2 pts) Consider the following segment table

Segment	Base	Length
0	200	350
1	2200	150
2	50	30

What is the physical address of the following logical address? Address : **(0 , 310)**

- a) 510
  - b) 670
  - c) 201
  - d) Segmentation Fault
- 8) (2 pts) Consider the following segment table

Segment	Base	Length
0	200	350
1	2200	150
2	50	30

What is the physical address of the following logical address? Address : **(1 , 205)**

- a) Segmentation Fault
- b) 2405
- c) 2201
- d) 405

9) (2 pts) Consider the following page reference string: **1,2,1,3,4,3,2,3,4,7,3,1**  
Assuming **pure** demand paging and **3 frames** allocation, how many page faults will the First-in-First-Out (**FIFO**) algorithm produce?

- a) 6
- b) 3
- c) 12
- d) 1

10) (2 pts) Consider the following page reference string: **1,2,1,3,4,3,2,3,4,7,3,1**  
Assuming **pure** demand paging and **3 frames** allocation, how many page faults will the Optimal (**OPT**) algorithm produce?

- a) 6
- b) 3
- c) 12
- d) 1