Homework 5 – CS 0449

Question 1: With an inverted page table, and physical memory that is 4 GiB in size, and pages that are 2KiB in size, how large is the page table?

A: 2 GiB **B:** 2 KiB **C:** 1 KiB **D:** 0.5 KiB

E: 2 MiB **F:** 4 KiB **G:** 0.5 GiB **H:** 782 KiB

Answer: **E**

Question 2: With a multi-level page table with two levels, 32-bit addresses, and a page size of 1 KiB, how many entries are in the individual page tables, if they are all the same size?

A: 2^4 **B:** 2^6 **C:** 2^8 **D:** 2^{10}

E: 2^5 **F:** 2^7 **G:** 2^9 **H:** 2^{11}

Answer: **H**

Question 3: To avoid a buffer overflow from being an effective security issue when a malicious actor uses one to inject code into a program, what is one possible strategy that could be used?

A: mark stack segment "read-only" **B:** mark stack segment as "non-execute"

C: mark code segment "writable" **D:** place data segment in high memory

Answer: **B**

Consider the following (normal) page table and translate the addresses that follow.

	Valid	Write	Execute	Physical Address
0000	1	0	1	e2f3
0001	0	0	0	0000
	...	...	...	...
aff0	0	0	0	c233
aff1	1	1	0	b3d8
aff2	0	0	0	0000
	...	...	...	...
fffc	0	0	0	563c
fffd	1	0	1	563b
fffe	1	0	0	aff1
ffff	1	0	0	af3d

Question 4: 0xaff1563b

A: 0xc233563b **B:** 0xb3d8aff1 **C:** 0xb3d8563b **D:** page fault

Answer: **C**

Question 5: 0xfffc1240

A: 0x563c1240 **B:** 0xfffcaff1 **C:** 0xfffc1240 **D:** page fault

Answer: **D**

Submission:

Please modify this document and answer in the provided spaces and submit your completed document as a PDF to Gradescope. You may write in your answers and scan them in. Or carefully modify this document in Word and export to PDF.