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: **?**

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: **?**

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: **?**

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: **?**

Question 5: `0xfffc1240`

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

Answer: **?**

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.