

CMPE283 – Virtualization
Midterm Exam

Name: _____

This exam is governed by the rules posted in the class Canvas discussions forum.

Select the best answer for each question. Questions 1-10 are worth 5 points each. Questions 11-12 are worth 10 points each.

1. _____ Which of the following terms describes a possible treatment of floating point registers during a process context switch?

- A. MOV to CR3
- B. Lazy switch
- C. Page fault
- D. FPU
- E. None of the above

2. _____ Which of the following best describes the size of the virtual address space on 32-bit Intel CPUs?

- A. Always 32 bits
- B. Always more than 32 bits
- C. Sometimes more than 32 bits, depending on the CPU
- D. None of the above

3. _____ When operating in 64 bit (long) mode, the depth of the processor's paging structures (page directory/page table) is:

- A. 2 levels deep
- B. 3 levels deep
- C. 4 levels deep
- D. There is not enough information provided to answer the question accurately

4. _____ True/False: The x86 architecture provides for four privilege levels of operation.

5. _____ Which of the following contains mappings between interrupt vector numbers and interrupt handler routines?

- A. IDT
- B. LDT
- C. GDT
- D. SDT
- E. None of the above

6. _____ Which of the following will occur if “exit on HLT” is disabled and a guest OS executes the HLT instruction, when running on a multiprocessor machine?

- A. The VCPU will become unresponsive until a virtual interrupt is delivered
- B. The PCPU will become unresponsive until a physical interrupt is delivered
- C. The hypervisor will be unable to schedule other VCPUs on the PCPU that is halted
- D. All of A,B, and C
- E. None of A,B, or C

7. _____ Which world switch consumes more CPU processing time during register read/write to/from the VMCS?

- A. VM Entry
- B. VM Exit
- C. Both VM Entries and VM Exits take equal time

8. _____ True/False : Prior to the introduction of Intel VMX/AMD SVM, it was not possible to fully virtualize a guest OS on the x86 platform.

9. _____ Which of the following is a feature provided by a VMM?

- A. Scheduling VCPUs on PCPUs
- B. Scheduling processes on CPUs
- C. Handling system calls from processes
- D. All of the above
- E. None of the above

10. Describe the treatment of SGDT in a virtualized environment.

11. Describe the process used by the CPU when translating a virtual address to a physical address. Points will be awarded based on the completeness of your answer.

12. Describe the scheduling responsibilities of a VMM.