Department of Electrical Engineering and Computing

Computing Security

CSEC 202 Reverse Engineering Fundamentals

Quiz #1

(22 Minutes)

Name:	ID

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Sections: CSEC202.600
Instructor: Emad AbuKhousa

Exam Instructions:

Complete All Questions (Total: 10 Points)

Points Equally Distributed. Questions & Options Randomized.

1. **What is the primary goal of software reverse engineering (SRE)?**
   A) To create entirely new software programs from the ground up.
   B) To understand a software system by analyzing its binary form and extracting its design and implementation details.
   C) To convert high-level programming languages into machine code.
   D) To enhance the graphical interface of existing software applications.

2. **Which of the following is considered the bridge between software and hardware in computer systems?**
   A) The operating system.
   B) The Instruction Set Architecture (ISA).
   C) The central processing unit (CPU).
   D) The hard disk drive (HDD).

3. **In standard ASCII, how many bits are used to represent one character?**
   A) 8
   B) 16
   C) 32
   D) 64

4. **What is the role of the assembler in the compilation system?**
   A) Converts high-level language into assembly language.
   B) Processes macro definitions and includes header files.
   C) Converts assembly language into machine code (object files).
   D) Optimizes the machine code for better performance.

5. **What are the four main components of Von Neumann Architecture?**
   A) Central Processing Unit (CPU), Registers, Cache, And Input-Output (I/O) Devices
   B) Central Processing Unit (CPU), Memory (RAM And Secondary Memory), Input-Output (I/O) Devices, And System Bus
   C) Arithmetic Logic Unit (ALU), Control Unit (CU), Memory, And System Bus
   D) Central Processing Unit (CPU), Primary Memory, External Storage Devices, And Input-Output (I/O) Devices

6. **Which one of the following is an Assembly command for the x86 32-bit architecture that writes the 32-bits value located at memory address A into the accumulator?**

   A) MOV AL, [A]

   B) MOV EAX, [A]

   C) MOV [A], EAX

   D) MOV AX, [A]

7. **Why might a CISC architecture like x86 take more cycles per instruction compared to RISC?**

   A) Due to the simplicity of the instructions
   B) Because of the more complex and variable-length instructions
   C) RISC architecture has less efficient silicon usage
   D) CISC instructions are of a fixed size

8. **What is the primary function of general-purpose registers in a CPU?**
   A) To store the operating system kernel.
   B) To manage network connections.
   C) To hold operands for operations and memory pointers.
   D) To synchronize the clock speed of the CPU.

9. What is the 'Store' operation in the context of CPU operations?

A) Saves the current CPU state for power-saving purposes.

B) Copies the operating system to memory.

C) Transfers data from a CPU register back into memory.

D) Writes data to an output device.

10. What is the primary role of the ESP register in a CPU's architecture?

A) To hold the current executing instruction.

B) To act as the base pointer for stack frames.

C) Stores the stack pointer, which directly points to the topmost element of the current stack in memory.

D) To keep a counter for the number of instructions executed.

Bonus Question: [1 Point]

Note: This bonus point applies solely to this exam and cannot be transferred to other assignments or exams.

1. Which of the following instructions is likely to set the Carry Flag (CF)?

A) "ADD AL, 0xFF" when AL contains 0x00.

B) "ADD AL, 0xFF" when AL contains 0x01 or greater.

C) "SUB AL, 0x01" when AL contains 0xFF.

D) "MOV AL, 0xFE" when AL contains 0x02.

Good Luck