CMPS-2240 Quiz-2 Name _____

Each question 1-points. Write clearly. Circle your answers please.

1. The MIPS program counter is the register $pc. What does the $pc register contain after the following instruction?

   jr $ra

   A. The value in $ra plus 1

   B. The value in $ra plus 4

   C. The value in $ra

   D. The value at the address of $ra

2. The $t0 register is register $8. Which temporary register can also be addressed as register $13?
   $t5
   If a MIPS function makes changes to any of the 'saved' registers ($s0 through $s7), the function has a responsibility.

   What is the function's responsibility?

   A. store the 'saved' register values to other registers.

   B. clear the 'saved' registers.

   C. save and restore the 'saved' registers using the stack.

   D. do not change the 'saved' register values.

3. Choose the input files for a linker.

   A. source

   B. executable

   C. object

   D. assembly language

   E. library

4. The MIPS ori instruction does a bitwise OR operation, and is used behind the scenes as a macro for the li command. What will the $t4 register contain after the following command executes?

   ori $t4, $0, 125

   A. decimal value 125.

   B. hexadecimal value 0x125.

   C. the same value as in register $0.

   D. the value 0

5. The MIPS program counter is the register $pc. What does the register contain?

   A. The count of instructions executed

   B. The address of the instruction currently executing

   C. The address of the next instruction to be executed

   D. The instruction currently being executed

6. When your program calls a function with jal, it is the responsibility of the function being called to save some registers on the stack. By convention, which registers should be saved by the caller?

   Hint: we saw this convention in the printf function that we called.

   A. the temporary registers $t0 through $t9

   B. the save registers $s0 through $s9

   C. the value in the $zero register

   D. any register that currently holds a value

   E. the argument registers $a0 through $a3

7. A forward reference is a label that is ahead of the current program counter. What does this type of control flow require an assembler to do?

   A. Calculate the difference in source and destination address.

   B. Branch prediction.

   C. Make multiple passes of the source file.

   D. Save the return address in a register such as $ra.

8. You are given a byte of memory with the following bit pattern: 11111111
   What decimal value will the byte contain after the following operations?

   bit-shift right 2

   bit-shift left 4

   bit-shift right 2

60

9. You are given a byte of memory with the following bit pattern: 00000001
   What decimal value will the byte contain after the following operations?

   bit-shift left 2

   add 1

   bit-shift left 2

   add 1

   21

10. What is the sum of the three binary numbers below?

    10110110

    00111011

    11100011

    111010100