CPE185-FINALS-SU22

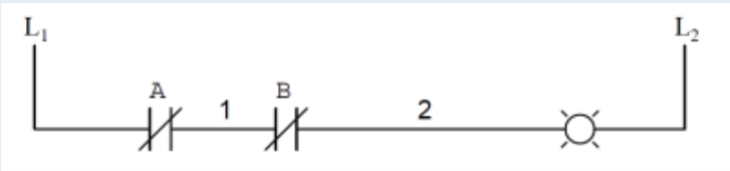
ATTEMPT 01 **(51/61)**

1. In adding 10+6 through a 4 bit integer unit. The state of the OF and CF flags after the add instruction would be:
   OF = 1, CF = 1
2. What are the contents of BX after this program?

Program	Memory location	Contents
MOV BX, 2024h	2026	F2
MOV CX, 4eh	2025	59
DEC BX	2024	39
AND CX, [BX]	2023	4E

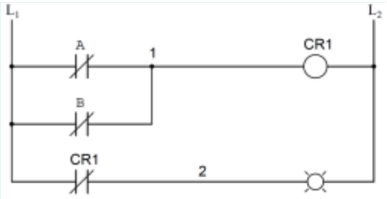
   Answer: 2023h
3. If the SP is F00F, what is the SP value after a “POP CX” instruction?
   F011
4. On the PPE board, what number(s) on the key pad is(are) pressed for an output port value of 02h and an input port value of 2Fh?
   5
5. What is the hexadecimal encoding for "JGE” for a jump back 12 bytes?
   7DF2
6. Which of the following Debug commands would set a break point at memory location 010C?
   G = 100 10C
7. The instruction MOV CX, SI is what addressing mode?
   Register
8. What is the RS232C specification voltage range for Logic 0 output?
   +3v to +25v
9. A “pull down” resistor is used in digital circuits to do what?
   To keep the signal line “tied” low until the line is active (goes high)
10. Ladder Logic is used in_____
    PLCs
11. In the MicroChip PIC with TRISD = 0b11111111, what is the configuration of the Port D?
    Bit 8 of port D is set to input
12. In the MicroChip PIC with TRISD = 0b11110000 and LATD = 0xAA, what value will be on Port D and shown on the LEDs?
    0A

13. The Ladder Logic diagram would represent which of the following?



Answer: NOR

14. The Ladder Logic diagram would represent which of the following?



Answer: AND

15. How many nibbles are in extended precision IEEE floating point format numbers (80bit)?

    20

16. Compare and contrast the Harvard architecture with the von Neumann architecture.
    a. The von Neumann architecture uses big endian addressing.
    b. The Harvard architecture uses big endian addressing.
    c. The Harvard architecture uses programmed I/O.
    d. The Harvard type uses a separate program and data memory
    e. The von Neumann architecture uses separate program and data memory.
17. What is the advantage of Programmed IO over Memory Mapped IO?
    a. is more efficient use of memory
    b. can handle more IO
    c. allows the processor to communicate with peripherals that have different data rates
    d. None of the answers
    e. is more efficient programming
    f. reduces the instructions required by the processor to communicate with IO
    g. All of the answers except "none of the answers"
18. x86, an INT 21 service A, will cause the processor perform which of the following?
    a. waits for a key to be pressed on the keyboard
    b. terminates the program
    c. None of the answers
    d. All of the answers except "none of the answers"
    e. terminates the program with error
    f. prints a string to the screen
    g. takes in keyboard input
19. x86, an INT 20, will cause the processor perform which of the following?
    a. terminates the program with error
    b. takes in keyboard input
    c. waits for a key to be pressed on the keyboard
    d. terminates the program
    e. prints a string to the screen
    f. None of the answers

g. **All of the answers except "none of the answers"**

20. In the x86 which register in the pointer group is used for the source index?

    SI

21. n the x86 which register in the pointer group is used for the data index?

    IP

22. What is Memory Mapped IO?
    a. All of the answers except "none of the answers"
    b. Communication Library
    c. None of the answers
    d. Is used where each input and output can be set
    e. Is a method of transferring data from the processor and a peripheral like a printer port
    f. Is a method of transferring data by directly accessing memory with register to memory or memory to register instructions

23. What is an interrupt?
    a. When a program determines if the IO is an input or output
    b. A signal to the processor emitted by hardware or software indicating an event
    c. All of the answers except "none of the answers"
    d. None of the answers
    e. When the program is actively sampling the status of a IO
    f. When a program asks the IO to give it information

24. How many wires are used in the I2C protocol?

    2 Wire

25. What is the voltage for IO output for a “ON” signal?

    Between 3.3V to 5V

26. What is the resolution of and 10bit ADC operating at 5 volts?
    (2^10)/5 = 204.8 mV **5 mV**

27. What is the definition of DAC?

    Digital Analog Converter

28. All of the following are true for pointers except for?
    a. All of the answers
    b. Are used when passing by reference
    c. Are used when passing by value
    d. A pointer is a variable which contains the address in memory of another variable
    e. Declaring a pointer variable should look like the following: “int * p”;

29. How many bytes are in an “int”?

    4 byte

30. When should we use pre-compiler statements?
    a. Create Constants
    b. **All of the answers**
    c. Create simple functions like #define getmax(a,b) ((a)>(b)?(a):(b))
    d. Remove blocks of code for debugging

31. Shifting an 8-bit register left one time changes the value of the register by what?

    Multiply by 2

32. Rotating an 8-bit register left seven time changes the value of the register by what?

Is the same

33. In the MicroChip PIC what bit mask would need to be applied to configure bit 4 of Port D to input? Assume ORing bit operation is applied.

    0xFF

34. In the MicroChip PIC with a bit mask = 0xFF, what bit mask operation would be used to configure Port D to input?

    ORing

35. What logical operation toggles a bit?

    XORing

36. What logical operation clears a bit?

    ANDing

37. What is the acronym ClSC stand for?

    Complex instruction set computer

38. What is -32.75_{10} in a base two number system?

    -100000.11000

39. AND'ing 1FH and 02H will result in which of the following?

    02

40. A "NOP" instruction in an x86 program will:

    Perform a No Operation

41. AND'ing 10Hex and 2FHex will result in which of the following Hex numbers?

    0

42. The acronym PWM used in Microcontrollers, is defined as:

    Pulse Width Modulation

43. What is the acronym RlSC stand for?

    Reduce instruction set computer

44. What is 458752.00 Converted to double precision FP?

    41 1C 00 00 00 00 00 00

45. The binary number, 1000 0101, represents what values as an unsigned binary, 8-bit signed binary, odd parity ASCII, and BCD number (in that order)?

    Answer: 133, -123, ENQ, 85

46. 36 decimal would be what value in hexadecimal?

    24

47. The doubling of performance and having of the cost in the electronics industry is which of the following?

    Moore's Law

48. What is -34 decimal in 2's complement (8 bits)?

    1101 1110

49. In x86 architecture, ALU stands for which of the following?

    Arithmetic Logic Unit

50. What is the advantage of C Language over Assembly Language?

    C Lanuage programs are transportable to other processor architectures

51. FPU used in Intel Architecture is defined as which of the following?

    Floating Point Unit

52. What is -96.2697 Converted to single precision FP?

C2 C0 8A 16

53. Using microcontrollers, GPIO is defined as?

    General Purpose Input Output

54. What is 152.1875 Converted to single precision FP?

    43 18 30 00

55. How many bytes are in an INT?

    4 byte

56. A microprocessor with a 33-bit address bus could access how much memory?

    8 GB

57. Convert 129.C hexadecimal into decimal

    297.75

58. What is the advantage of Assembly Language over C Language?

    Assembly Language creates much faster executable code

59. What is C2 C0 8A 16 Hex single precision FP converted to Decimal?

    -96.2697

60. What is 152.1875 Converted to double precision FP?

    40 63 06 00 00 00 00 00

61. The ASCII codes for space, space, carriage return, line feed, end of string in hexdecimal are:

    20, 20, 0D, 0A 24

2ND ATTEMPT **(51/61)**

1. In adding 3 + 3 through a 4 bit integer unit. The state of the OF and CF flags after the add instruction would be:

   OF = 1, CF = 0

2. What are the contents of BX after this program has been run:

	Memory location	Contents	Memory location	Contents
MOV CX, 00FFh				
MOV BX,[550E]	5514	24	F23F	24
AND CX, [BX]	5513	D8	F23E	D8
MOV DX, 11h	5512	00	F23D	24
MOV CX,[5512]	5511	21	F23C	D8
MOV BX, 5511h	5510	00	F23B	00
SUB DX, [BX]	550F	F2	F23A	21
AND BX, FF00	550E	39	F239	00

   ANSWER: 5500h

3. In MASM, with a "MOV CX, 24" instruction, and a "LOOP" instruction, in decimal how many times will the program loop?

   24

4. If CX is 0003, what will CX be after a "LOOPNZ" instruction?

   0002

5. What is the hexadecimal encoding for adding BX with CX and storing the result in BX?

   03D9 or 03CB

6. Which of the following Debug instructions would be used to change the IP register to 0110?

   RIP

7. The instruction MOV CX, [SI] is what addressing mode?

   Register Indirect

8. What are the TTL logic level voltages for a Logic 0 and Logic 1?

   0v to +5v

9. A "pull up" resistor is used in digital circuits to do what?

   To keep the signal "tied" high until the line is active (goes low)

10. The acronym PLC, is defined as which of the following?

    Programmable Logic Controller

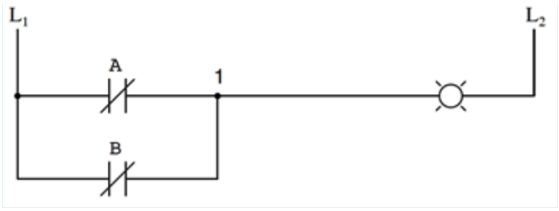
11. In the MicroChip PIC with TRISD = 0b01111111, what is the configuration of the Port D?

    Bit 7 of port D is set to output

12. Which of the following would be used to set the TRISA register to control the direction of the MicroChip PIC Port to input?

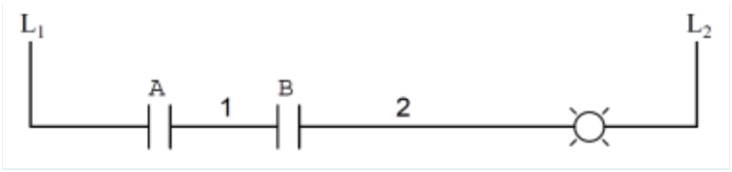
    1

13. The Ladder Logic diagram would represent which of the following?



ANSWER: NAND

14. The Ladder Logic diagram would represent which of the following?



ANSWER: AND

15. How many nibbles are in single precision IEEE floating point format numbers (32bit)?

    8

16. The Intel x86 architecture is based on which of the following computer architecture(s)?

    Von Neumann

17. What is the advantage of Memory Mapped IO over Programmed IO?
    - **a. is more efficient programming**
    - b. is more efficient use of memory
    - c. can handle more IO
    - d. reduces the instructions required by the processor to communicate with IO
    - e. allows the processor to communicate with peripherals that have different data rates
    - f. All of the answers except "none of the answers"
    - g. None of the answers

18. x86, an INT 21 service 9, will cause the processor perform which of the following?

    prints a string to the screen

19. x86, an INT 16 service 0, will cause the processor perform which of the following?

    takes in keyboard input

20. In the x86 which register is used most often and has the one less byte in its machine code?

    None of the answers

21. In the x86 which register is used for current instruction location?

    All of the answers except "none of the answers"

22. What is Programmed IO?
    - a. Is a method of transferring data by directly accessing memory with register to memory or memory to register instructions
    - b. Communication Library
    - c. Is used where each input and output can be set
    - d. Is a method of transferring data from the processor and a peripheral like a printer port
    - **e. All of the answers except "none of the answers"**
    - f. None of the answers

23. What would the advantage be of using interrupt driven IO over polling?
    - a. polling is faster
    - b. polling allows for checking multiple inputs
    - c. None of the answers
    - d. assembly instructions are faster than C language code.
    - e. All of the answers except "none of the answers"
    - **f. interrupts would allow the processor to perform other operations**

24. What is the definition of I2C?
    Inter Integrated Circuit Protocol
25. What is the voltage for IO output for an “OFF” signal?
    None of the answers
26. What is the resolution of and 8bit ADC operating at 5 volts?
    20 mV
27. What is the definition of PWM?
    Pulse Width Modulation
28. What is polling?
    a. When the program actively sampling the status of a IO
    b. When a program determines if the IO is a input or output
    c. When a program asks the IO to give it information
    d. All of the answers except "none of the answers"
    e. None of the answers
29. How many bytes are in a “char”?
    1 byte
30. What is an example of a pre-compiler statement?
    a. All of the answers
    b. #define
    c. #include
    d. A Macro
31. Shifting an 8-bit register left eight times changes the value of the register by what?
    zero
32. Rotating an 8-bit register left eight times changes the value of the register by what?
    Is the same
33. In the MicroChip PIC with a bit mask = 0x00, what bit mask operation would be used to configure Port D to output?
    XORing
34. In the MicroChip PIC what bit mask would need to be applied to configure bit 4 and 2 of Port D to input? Assume ORing bit operation is applied.
    0xFF
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