X

Unit 6 - Week 5: Addressing Modes, Instruction Set and Instruction Execution Flow

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Course outline

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Week 5: Addressing Modes, Instruction Set and Instruction Execution Flow

Lecture 1:

Assignment for Week 5

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-03-06, 23:59 IST.

1) JU 3F3F: This instruction causes the program to jump to location 3F3F unconditionally. JU is a *1 point*

- Data transfer instruction
- Control instruction
- Arithmetic and Logical instruction
- Hybrid Instruction

No, the answer is incorrect.
Score: 0

Accepted Answers:
Control instruction

2) JUZ 3F3F: This instruction causes the program to jump to location 3F3F if Zero flag is set. JUZ is a *1 point*

- Data transfer instruction
- Un-conditional Control instruction
- Conditional Control instruction
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Conditional Control instruction

3) Assume that we have a 4 bit ALU. Consider the operation 5 + 2 given below, assuming signed arithmetic *1 point*

5+2: Assumed signed arithmetic
5 is represented as 0101 in 2's complement format
1 is represented as 0010 in 2's complement format

Now,

```
  0101
+ 0010
------
  0111
```

After the operation, which of the following options denote the values of the flags: Zero, Negative, Carry, Even Parity?

- Zero=1, Negative=1, Carry=1, and Even Parity =1
- Zero=0, Negative=1, Carry=0, and Even Parity =0
- Zero=0, Negative=0, Carry=0, and Even Parity =0
- Zero=1, Negative=0, Carry=0, and Even Parity =1

No, the answer is incorrect.
Score: 0

Accepted Answers:
Zero=0, Negative=0, Carry=0, and Even Parity =0

4) What will be the value in R0 after executing the following sub-program? ***1 point***

```
    MOVI R0, 00
While:
    ADDI R0, 10  // R0 = R0 + 10
    CMPI R0, 50  // Compare value in R0 with 50 (immediate value)
    JNE While  // Jump to While if the value in R0 is not equal to 50.
```

- 10
- 20
- 50
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
50

5) In nested procedure CALL/RETURN, prior to the starting of a subroutine, which of the following is performed? ***1 point***

- PC (Program Counter), PSW (Program Status Word) register variables etc. are retrieved from the queue
- PC (Program Counter), PSW (Program Status Word) register variables etc. are retrieved from the stack
- PC (Program Counter), PSW (Program Status Word) register variables etc. are saved in a queue
- PC (Program Counter), PSW (Program Status Word) register variables etc. are saved in a stack

No, the answer is incorrect.
Score: 0

Accepted Answers:
PC (Program Counter), PSW (Program Status Word) register variables etc. are saved in a stack

6) The following is the micro-operation sequence needed for the instruction PUSH: ***1 point***

PUSH Ri

a. MAR ← SP
b. ----------
c. Write
d. SP=SP-1 // Decrement the stack pointer value

Which of the following describes most appropriately, the second step?

- PC ← PC+1 (PC gets incremented by instruction length)
- MAR ← address of operand in IR
- PC ← Pop the return address from the stack
- MBR ← Ri

No, the answer is incorrect.
Score: 0

Accepted Answers:
MBR ← Ri

7) The following is the micro-operation sequence needed for the instruction 'POP': ***1 point***

POP Ri

a: SP <- SP +1
b: ----------
c: Read
d: Ri <- MBR // pop the top element of stack and store in register Ri

Which of the following describes most appropriately, the second step (i.e., is (b)) marked above with ----------

- PC<-PC+1 (PC gets incremented by instruction length)
- MAR <- address of operand in IR
- PC <-Pop the return address from the stack
- MAR <-SP (Memory address register is assigned the value of Stack Pointer)

No, the answer is incorrect.
Score: 0

Accepted Answers:
MAR <-SP (Memory address register is assigned the value of Stack Pointer)

8) The overflow bit is SET if ***1 point***

- If the sum of 2 positive numbers yields a positive number
- If the addition of 2 numbers result in carry out of the most significant number
- If the sum of 2 positive numbers yields a negative number
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
If the sum of 2 positive numbers yields a negative number

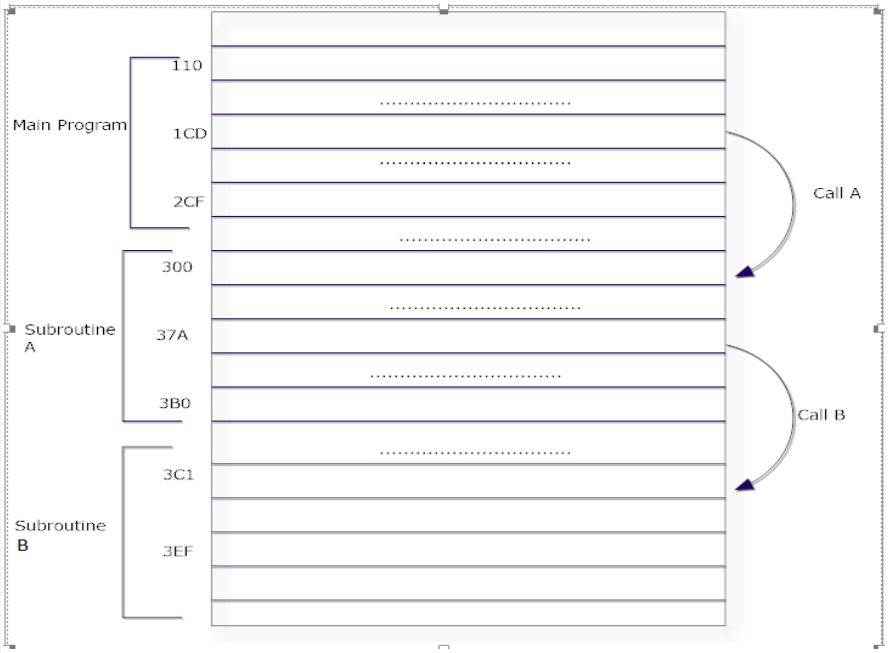
9) A stack pointer gives ***1 point***

- The address of the memory of the stack where the details of the main program is stored.
- The address of the PSW and PC of the currently executing subroutine.
- The address of the last filled memory of the stack after each subroutine call.
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
The address of the last filled memory of the stack after each subroutine call.

10) Consider the memory segment shown in the figure below. The main program, procedure A and procedure B are the programs stored in this memory segment. Memory location for CALL A instruction is 1CD and CALL B instruction is 37A. Assume that there are 8 general purpose registers and we need to retain the value of all the registers during procedure call. Which of the following **does not** occur when the CALL B instruction is executed? ***1 point***



- PC becomes 3C1
- Eight registers are pushed in the stack
- Program status word is retrieved from the stack
- Control move to procedure B

No, the answer is incorrect.
Score: 0

Accepted Answers:
Program status word is retrieved from the stack

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