

# MSP430 ISA

Started: Sep 21 at 9:21pm

## Quiz Instructions

This is a practice quiz that will test your knowledge of MSP430 Instruction Set Architecture.

### Question 1

1 pts

Stack Pointer register (SP) points to the last full location on the stack.

- ☒ True
- ☐ False

### Question 2

1 pts

Size of MSP430 address space is:

- ☐ 256 bytes
- ☒ 16,384 bytes
- ☐  $2^8$  bytes
- ☐  $2^{16}$  bytes

### Question 3

1 pts

The following code sequence sums up variables A and B from memory and stores their sum in the variable C. What type of machine is used?

LOAD A

ADD B

STORE C

- ☐ Accumulator-based machine — *one address machine*
- ☐ Stack machine
- ☐ Register-memory machine
- ☐ Star-track machine

#### Question 4

1 pts

Consider the following machine instruction:

MOV.W @R5+, 200(R7);

What is the address of the destination operand if R7=0x0600?

- ☐ 0x06C8
- ☐ 0x0400
- ☒ 0x0800
- ☐ 800

#### Question 5

1 pts

Consider the following machine instruction:

MOV.W @R5+, 200(R7);

What is the addressing mode of the source operand?

- ☐ Register direct
- ☐ Register indirect
- ☐ Indexed
- ☒ Register indirect with autoincrement

Every addressing mode except indirect and auto increment add an additional word for

Question 6 Each register they apply to

1 pts

What is the size of the following instruction?

ADD.W MyVar1, MyVar2

- ☒ 1 word
- ☐ 2 words
- ☐ 3 words
- ☐ 4 words

Question 7

1 pts

What is the result of execution of the following instruction?

SUBC.B R7, R8

Assume R7=0x0908; R8=0x0325; R2=0x0001 (C=1, V=N=Z=0).

SUBC (.B) src,dst dst + .not.src + C → dst

- ☒ R8=0x001D
- ☐ R8=0x0013
- ☐ R8=0xFA1D

$$R8 \leftarrow R8 + 'R7 + 1$$

$$\begin{array}{r} 0006 \ 1000 \\ 1111 \ 0111 \\ + 0010 \ 0101 \\ \hline 0001 \ 1100 \end{array}$$

☐ R8=0x0012

## Question 8

1 pts

What is the result of execution of the following instruction?

DADD.B R7, R8

Assume R7=0x0908; R8=0x0325; R2=0x0000 (C=V=N=Z=0).

DADD (.B)      src,dst      src + dst + C → dst (decimally)

$$\begin{array}{r} 08 \\ + 25 \\ \hline 33 \end{array}$$

☐ R8=0x002D

☒ R8=0x0033

☐ R8=0x1233

☐ R8=0x0C2D

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$$\begin{array}{l} 0x0908 = R7 \\ 0x0325 = R8 \end{array}$$

$$\begin{array}{r} 0908 \\ + 0325 \\ \hline 0C2D \end{array}$$

$$\begin{array}{r} 0908 \\ + 0325 \\ \hline 1233 \end{array}$$