

Department of Electrical and Computer Engineering
University of Alabama in Huntsville
CPE 323 – Introduction to Embedded Computer Systems
Quiz 2: Solutions

1 (10)	2 (10+2)	Total (20+2)

1. (10 points) Circle the correct answer, true or false?

1.A (**True** | False) Assembly language directive “DS16 4” allocates 8 bytes in memory.

1.B (True | **False**) Assembly language directive “DC8 2” allocates two bytes in memory and initializes them with value 0x02.

1.C (**True** | False) MSP430 instructions with suffix .B operate on 8-bit bytes.

1.D (**True** | False) The MSP430 register R1 serves as the stack pointer.

1.E (True | **False**) The instruction MOV.B #45, &0x0300 requires two words to be encoded.

2. (10 points) Fill in the table below by determining the source and destination addressing modes and the destination address for given instructions. Assume the following conditions: R7=0xE008, TONI marks the memory location at address 0x800C, and EDE marks the memory location at address 0xE00C.

Instruction	Source Addressing Mode (1 point each)	Dest. Addressing Mode (1 point each)	Destination address (2 points each)
ADD.B 3(R5), -8(R7)	Indexed	Indexed	da=R7-8 = 0xE000
MOV &EDE, TONI	Absolute	Symbolic	da=0x800C
SUB @R5, &EDE	Register indirect	Absolute	da=0xE00C

Bonus (2 points total):

ADD @R5+, 0(R7)	Autoincrement	Indexed	da=0xE008
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