

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI
II SEMESTER 2013-2014
EEE/CS/INSTR F241 MICROPROCESSOR PROGRAMMING AND INTERFACING
QUIZ #3 (OPEN BOOK)

MARKS:10

19-02-2014

DURATION: 30 MIN

ID:	NAME: SOLUTIONS	SEC:
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Note: Each question carries two marks.

Q1. The Interrupt Vector Table for a CPU lies in the range 00000H to 007FFH. How many different types of interrupt vectors can the CPU handle?

512

Q2. Write the equivalent instruction for the following statements valid for 80x86 processors:

- a) If the accumulator equals the destination, the source operand is copied into the destination. If the accumulator and destination operands are different, the accumulator is replaced by the value in the destination.

CMPXCHG dest, src

- b) For converting a signed 32 bit value stored in a register to a signed 64 bit value stored in a pair of registers.

CDQ

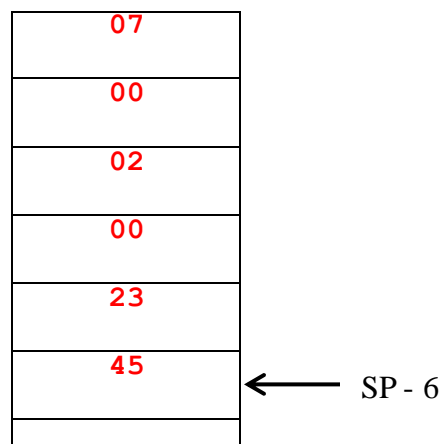
- c) The instruction that converts the data stored in a register between the little endian and big endian format.

BSWAP reg32

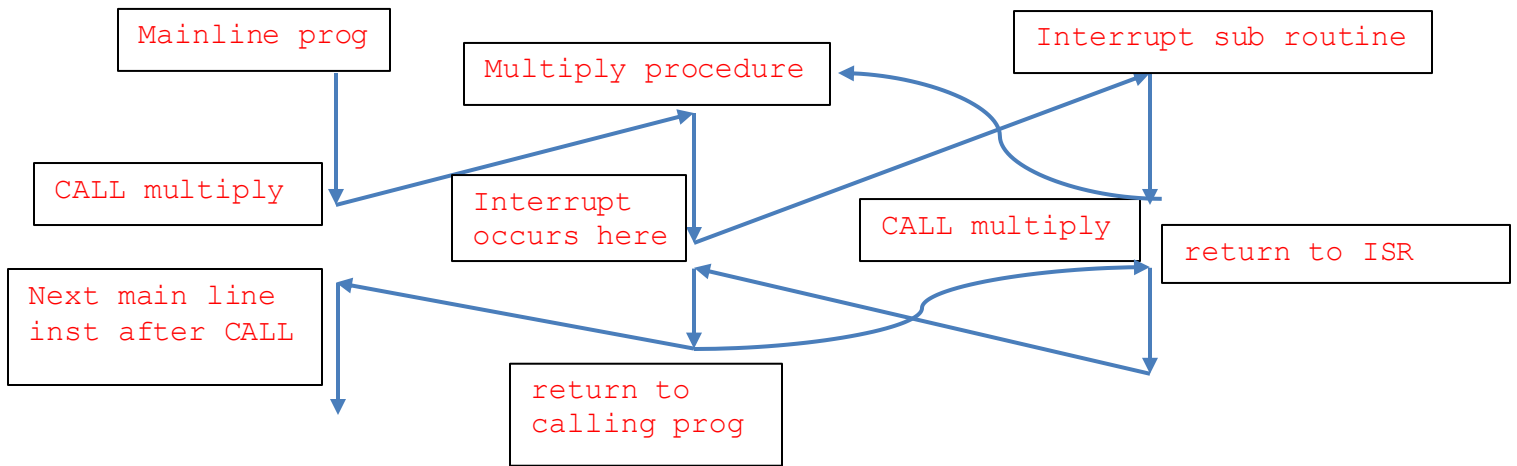
- d) The instruction that shifts the destination right 'count' number of times and the right shifted bit positions of the destination are filled with the 'count' number of least significant bits of the source.

SHRD reg, reg, count

Q3. The return addresses of two subroutines are stored on the stack. The subroutine called first was a far procedure. The instruction that called it pushed the return address 0700:0200. The second subroutine called was a near procedure with a return address of 2345H. The second subroutine was called from inside the first subroutine. Write the top six locations of the stack.



Q4. An 8086 was in middle of executing a multiply procedure (type near) when an external signal interrupted the CPU. The ISR for the interrupt also requires the same multiply procedure to be used. Show the program execution flow starting from calling the procedure from main line program and returning to the instruction after the CALL instruction in the main line program.



Q5. In question 4, how would the program execution flow change if we used the multiply macro instead of the multiply procedure? (other conditions remain same).

