PPC

1. Information representation question: The M•CORE architecture utilizes bytes (8 bits), halfwords (16 bits) or words (32 bits). The values can be represented in unsigned binary or two's complement. Complete the following table by providing the bit patterns or numbers that are indicated.

1100 1100 11

Number	Two's Complement	Unsigned Binary
819 (as halfword)	0x 333	0000 0011 0011 0011 or 0x333
-196,608 (as word)	0xFFFD 0000 or 1111 1111 1111 1101 0000 0000 0000 0000	N/A
Minimum Representable Value (of halfword)	-2^{15}	0
Maximum Representable Value (of halfword)	$+2^{15}-1$	$2^{16}-1$

Hint: 196,608 = 65,536 + 131,072

$2^{16} + 2^{17}$

FFF D

2. General information question:

a) What is the basic tenet of stored program computers?

b) The M•CORE architecture does not utilize the more traditional Carry/Overflow/Sign/Zero status register used by a number of other systems. Instead, it uses the C bit for multiple precision arithmetic, rotates, and testing operations. Give an instruction that will force the C bit to be a 1 under all conditions.

c) List the four different types of instructions.

d) Which of the 16 general purpose registers is used as a Stack Pointer? Which of the 16 general purpose registers is used for subroutine return addresses?

e) The M•CORE architecture follows the concepts of a Reduced Instruction Set Computer (RISC), one of which is termed the "load-store" method, indicating that the values are loaded into the registers, work done, and the results are stored again in memory. Why does this method provide an advantage over systems that allow operands to be located in memory?

f) According to the Applications Binary Interface Standard, if there are six or fewer parameters to pass to a subroutine, where are they located?