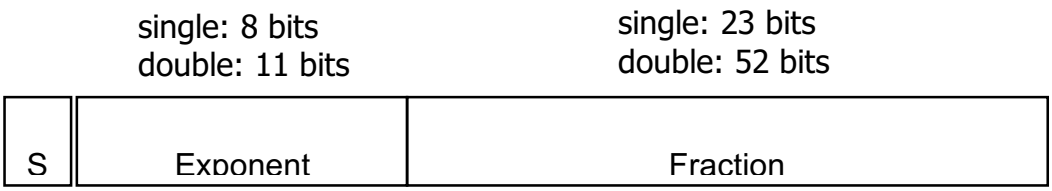
CMPEN331 – Quiz 4 (March 17, 2022)

Section: **Major:**

Name: **Email:**



$$x = (-1)^S \times (1 + \text{Fraction}) \times 2^{(\text{Exponent} - \text{Bias})}$$

A. Using 32-bit IEEE 754 single precision floating point with one (1) sign bit, eight (8) exponent bits and twenty-three (23) mantissa bits, show the representation of -11/16 (-0.6875).

The representation of -0.6875 is:

1 01111110 01100000000000000000000

B. What decimal number does the bit pattern 0X0C000000 represent if it is a floating-point number? Use the IEEE 754 standard single precision format.

0X0C000000 = 0000 1100 0000 0000 0000 0000 0000 0000
= 0 0001 1000 0000 0000 0000 0000 0000 000
sign is positive
exp = 0X18 = 24 _ 127 = -103
there is a hidden 1
mantissa = 0
answer = $1.0 \text{ X } 2^{-103}$