

**KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
COMPUTER ENGINEERING DEPARTMENT**

**COE 308-01, Term 982
HW# 2 SOLUTION**

Q.1.

40	00101000	1	00000001
-	+	+	+
50	<u>11001110</u>	127	<u>01111111</u>
	11110110 NO overflow		10000000 Overflow

Q.2.

C	A	Q	(M = 00101)
0	00000	01011	
0	00101	01011	
0	00010	10101	
0	00111	10101	
0	00011	11010	
0	00001	11101	
0	00110	11101	
0	00011	01110	
0	00001	10111	(Result = 0000110111 = 55 ₁₀)

Q.3.

A	Q	Q ₋₁	(M = 11011)
00000	01011	0	
00101	01011	0	
00010	10101	1	
00001	01010	1	
11100	01010	1	
11110	00101	0	
00011	00101	0	
00001	10010	1	
11100	10010	1	
11110	01001	0	(Result = 1111001001 = -55 ₁₀)

Q.4. (-4.3) is stored as S₁=1 E₁=100011 and M₁=100010
 (128 x 10⁶) is stored as S₂=0 E₂=111100 and M₂=100000

Q.5. 1. E₃ = 111100 M₁=000000
 2. M₁ became 0 therefore S₃ = 0 E₃=111100 and M₃=100000

Q.6. 1. S₃=1 and E₃=00111111
 2. M₃= 010001000000
 3. S₃=1 M₃=100010 E₃=00111110