

Q1-5 (should be clear from graded exam paper)

Q6 19 010011 010011 110101
 -28 111100 100100 000110
 -22 110110 101010 001100
 30 011110 011110 overflow

Q7 10.10101₂ = 0010.1010 1000₂ = 2.A8₁₆

Q8 Carry bits: 111110000
 Sum bits: 01010011
 Overflow: No
 Explain: C, H

Q9 Overflow: Yes
 Explain: B

Q10 ((2*5 + 1)*5 + 3)*5 + 4 = 294

Q11-13 (should be clear from graded exam paper)

Q14 0034
 FFEF

Q15 011 0100
 10 1111

Q16 4 (most +ve of 3 +ve: has largest "biased exponent & fraction")
 1 (lone -ve number)
 3 (more +ve of remaining 2 +ve: has larger fraction)
 2 (less +ve of remaining 2 +ve: has smaller fraction)

Q17 41BB9999 23.45 = 10111.011100₂ = 1.0111011100₂ × 2⁴
 sign bit: 0
 biased exponent: 127+4 = 128+3 = 10000011₂
 fraction: 0111011100₂
 0 10000011 0111011100₂
 0100 0001 1011 1011 1001 1001 1001 1001₂

23/2 = 11R1	.45*2 = 0.9
11/2 = 5R1	.9*2 = 1.8
5/2 = 2R1	.8*2 = 1.6
2/2 = 1R0	.6*2 = 1.2
1/2 = 0R1	.2*2 = 0.4
	.4*2 = 0.8

Score Distribution: Exam 1, CS 2318 §256 & §257, Spring 2026

