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CS 1114 Homework #1

Question 1

a) 10011011 (base 2)= 2^7 + 2^4 + 2^3 + 2^1 +2^0 = 128 + 16 + 8 + 2 + 1 = 155

b) 1101101 (base 2) = 2^6 + 2^5 + 2^3 + 2^2 + 2^0 = 64 + 32 + 8 + 4 +1 = 109

c) 3A8 (base 16) = (3 = 0011, A = 1010, 8 = 1000) = 1110101000 (base2)

= 2^9 + 2^8 + 2^7 + 2^5 + 2^3 = 512 + 256 + 128 + 32 + 8 = 936

d) 2214 (base 5) = 2*(5^3) + 2*(5^2) + 1*(5^1) + 4*(5^0) = 250 + 50 + 5 + 4 = 309

Question 2

a) 69 (base 10) = (69-64 = 5, 5-4 = 1) = (2^6 = 64, 2^2 = 4, 2^0 = 1) = 1000101

b) 485 (base 10) = (485–256 = 229, 229–128 = 101, 101–64 = 37, 37–32 = 5, 5–4 = 1)

= (2^8 = 256, 2^7 = 128, 2^6 = 64, 2^5 = 32, 2^2 = 4, 2^0 = 1) = 111100101

c) 6D1A (base 16) = (6 = 0110, D = 1101, 1 = 0001, A = 1010) = 110110100011010