Final
Algebraic Coding Theory
Math 525
Stephen Giang RedID: 823184070

Problem 5: Let β be a primitive element of GF(2^8), the finite field with 256 elements. Determine the minimum distance of the cyclic code of length 255 over GF(2^8) generated by $g(x) = (x + \beta)(x + \beta^{18})$.

From here, we can see that the generator polynomial has 2 roots, β and β^{18}. We also know that because it is a BCH code it will correct up to 2 errors in a $n = 255$ digit block. Thus, we get that the minimum distance is 5