CMSC 442/653
Spring 2009
Instructor: Dr. Lomonaco
Homework 8

- **Optional listening assignment:** Listen to Camille Saint-Saens' Danse Macabre.
- **Reading assignment:** Peterson, "Error-Correcting Codes," MIT Press, (1961), Chapters 7, which can be downloaded from the following link: http://www.cs.umbc.edu/~lomonaco/f06/653/handouts/Peterson-LSC.pdf

1UG) Draw the linear sequential circuit (LSC) that multiplies by the polynomial

$$h(x) = 1 + x^3 + x^6$$

2UG) Draw the linear sequential circuit (LSC) that divides by the polynomial

$$g(x) = 1 + x^2 + x^4 + x^6 + x^7$$

3UG) Draw the linear sequential circuit (LSC) that simultaneously multiplies by $h(x)$ and divides by $g(x)$.

4UG) Draw an LSC which takes as inputs polynomials $a(x)$ and $b(x)$ and then produces the output $h(x)a(x) + k(x)b(x)$, where $h(x)$ and $k(x)$ are the polynomials:

$$h(x) = 1 + x^4 + x^{10} \qquad \text{and} \qquad k(x) = x + x^2 + x^4 + x^7 + x^9$$