

KFUPM - COMPUTER ENGINEERING DEPARTMENT

COE-540 – Computer Networks

Quiz 01 – Due March 12th, 2011 – Take home quiz

Student Name:

Student Number:

Consider the CRC procedure explained in class and illustrated in the textbook.

a) Show that if $g(D)$ is chosen as a primitive polynomial of degree L , and the frame length is restricted to be at most $2^L - 1$, then all double errors are detected?

b) Prove that if the generator polynomial $g(D)$ has a factor of $(1+D)$, then ALL sequences of ODD number of errors are detected.

c) Describe the practical guidelines for choosing a good generator polynomial $g(D)$. What are the properties of such code in terms of minimum distance, burst detecting capability, and probability of undetectable errors.

d) Let $g(D) = D^4 + D^2 + D + 1$, and the data string $s_3s_2s_1s_0 = 1011$. Compute the transmitted frame x .

Hint: Refer to the textbook pages 63 and 64.