KFUPM - COMPUTER ENGINEERING DEPARTMENT
COE-540 – Computer Networks - Quiz 03 – Due Mon Oct 24th, 2011

Student Name:
Student Number:

Problem 1(10 points): Frames of random length are observed on a link. If 30% of frames are of 64 Bytes long, 50% are of 512 Bytes long, and 20% of frame are 1024 Bytes long. Compute the following quantities:

a) The average and standard deviation for frame length in bytes.

b) The theoretical minimum number of bits required to encode the frame length information.

c) Use Huffman source coding technique to compute the frame length codes and compute the corresponding average frame length code.

Problem 3(10 points): A 12-bit Hamming code whose hexadecimal value is 0xE4F arrives at the receiver. What is the original code word in hexadecimal after correcting the error? What is the original message? Assume that no more than one bit is in error. Show all your calculations.