EE3A2 Tutorial 2
Questions (from Past Exam Papers) on Error Control Coding and Routing

2008

1. Check the following Hamming (7,4) codewords and correct any errors. The data bits k1..k4 are followed by the check bits c1..c3, calculated as
c1=k1+k2+k4, c2=k1+k3+k4 and c3=k2+k3+k4 (where + indicates binary addition)
i)   0010010
ii)   1100000
iii)   1110111

2. Use the generator polynomial, $G(x)=x^8+x^2+x+1$, to encode the data sequence, 101110111. Show your working clearly and write down the encoded data bits clearly identifying the check bits.

2009

3. Calculate the minimum distance from and to node 6 in Figure 1 using both Dijkstra and Bellman-Ford routing methods. Clearly show your working for each with a table listing the results of each iteration and redraw the network showing the shortest paths.
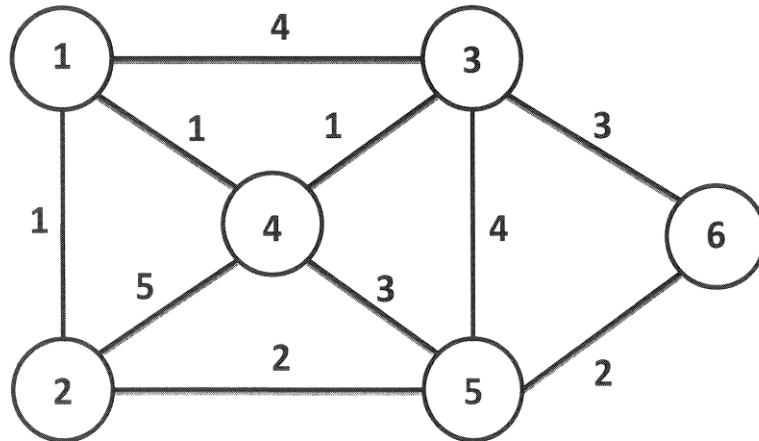

Figure 1