Integral University, Lucknow

I Mid Semester Examination 2014-2015

INFORMATION THEORY AND CODING (EC-031)

Year : Final Year Electronics & Communication Engineering

Maximum Marks: 30

Time : 90 Minutes

Note: Attempt any three questions. Make figures, data sheets & graphs where it needed.

1. Compute the Huffman & Shannon fanon code for seven symbol whose probabilities of occurrence are same.
2. Consider a Binary Symmetric Channel shown in the Fig 1.1 is emitting two symbols x_1 & x_2 and it's symbol emitting probability respectively is given as p & (1-p).

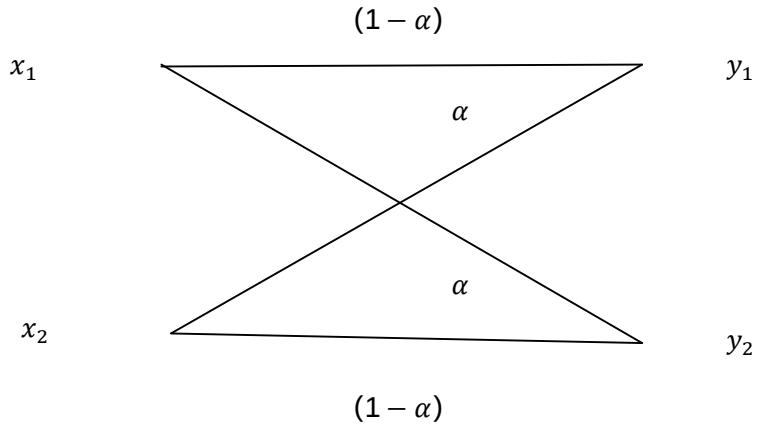

Fig 1.1 : Binary Symmetric Channel

Calculate the following parameters

(a). H(X) (b). H(Y) (c). H(X/Y) (d). H(Y/X) (e). I(X;Y)

3. Write short notes on the ISBN codes & bar codes.
4. Explain Shannon theorem with it's mathematical expressions in detail.
5. Explain block codes with appropriate example. Also mention generation of code word & syndrome calculation for the same code word in the receiving end.