Department of Electronics & Communication Engineering

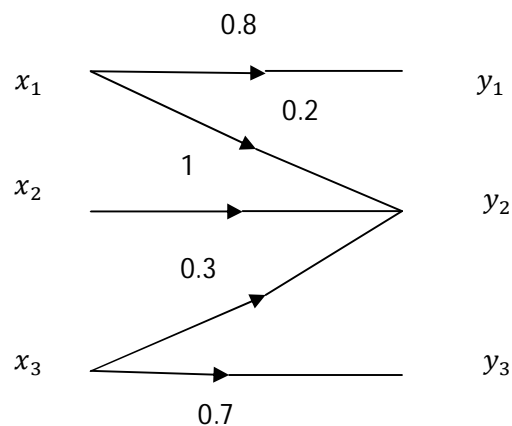## Faculty of Engineering, Integral University, Lucknow

Surprise Test-1

Information Theory & Coding (EC-031)

Time : 50 Minutes

Attempt all questions.

1. Give the definition of conditional and joint entropy with it's mathematical expression. Also show the relationship between the condition & joint entropy.
2. When baud rate is used in the transmission of the data.
3. Let a discrete source is transmitting messages x_1, x_2 & x_3 with their probabilities 0.3, 0.4 & 0.3. These source are connected to the channel as shown in the below figure.

   Calculate H(X) & H(Y) for the above transmission.
4. Let a discrete memory less source is emitting the ten equally liked symbols. Design the code book with the help of Shannon Fano coding.