

Department of Electronics & Communication Engineering

Faculty of Engineering, Integral University, Lucknow

Digital Communication**Question Bank****Unit-1**

1. Draw the model of a Digital Communication System. Explain each block.
2. Define information the context of communication system.
3. Define Entropy and Information rate.
4. Write down channel capacity theorem for discrete memory less channel.
5. Define Hartely-Shannon law.
6. A discrete source emits one of five symbols once every millisecond with probabilities $1/2$, $1/4$, $1/8$, $1/16$ and $1/16$ respectively. Determine the source entropy and information rate.
7. The probabilities of the four possible outcomes of an experiment are given as $1/2$, $1/4$, $1/8$ and $1/16$. Determine the entropy and information rate if there are 16 outcomes per second.
8. A discrete source emits one of five symbols once every millisecond with probabilities $1/2$, $1/4$, $1/8$, $1/16$ and $1/16$ respectively. Compute Huffman code for this source.
9. A discrete source emits one of five symbols once every millisecond with probabilities $1/2$, $1/4$, $1/8$, $1/16$ and $1/16$ respectively. Compute Shannon-Fanno code for this source.
10. Discuss Entropy of band limited white Gaussian noise channel.