**SWARNANDHRA INSTITUTE OF ENGINEERING & TECHNOLOGY**

***Approved by A.I.C.T.E. Affiliated to J.N.T. U, K, accredited by NAAC with A grade***

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**Department of Electronics & Communication Engineering**

**NAME: A.KARNA RAO SUB: Digital Communications**

**DEPT: ECE CLASS: III ECE**

**SET-I**

1. Draw the PCM system and explain its operation of modulation and demodulation?
2. a) Explain the working of BPSK modulation and Demodulation?

b) Explain the similarities between different modulation techniques?

1. What is a based signal receiver? Derive an expression for signal to noise ratio of integrate and dump receiver?

**SET-II**

1. Explain quantization error and derive an expression for maximum SNR in PCM system that

uses linear quantization?

2. a) Explain the working of DPSK modulation and Demodulation?

b) Compare binary PSK and QPSK schemes?

1. a) Explain the properties of the matched filter.

b) Derive an expression of probability of error for integrate and dump receiver?

**SET-III**

1. a) What is slope overload distortion and granular noise in Delta Modulation? How is it

Removed in ADM?

b) Discuss the elements of digital communication system and list the advantages of it?

2. Explain the working principles of QPSK modulation and demodulation?

1. a) Explain about ASK system and derive the expression for error probability of binary ASK?

d) A binary data stream 11001100100 needs to be transmitted using ASK draw the waveforms?

**SET-IV**

1. How is differential PCM advantageous over PCM? Give the block diagrams of DPCM transmitter and receiver and analyse its parameters.
2. a) Explain the process of generating FSK signals with modulation and demodulation?

b) A binary data stream 00100110011 needs to be transmitted using DPSK Technique with

phase changes. Draw the DPSK signal waveform and find transmitted phase changes?

1. Obtain the probability of error for BPSK & explain DEPSK scheme?