

**Data Communication
(EC-304, Dec-2005)**

Note: Section A is compulsory. Attempt any four questions from Section-B and any two from Section-C.

Section-A

1. a) List the merits of digital transmission.
- b) Define Aliasing.
- c) What is Intersymbol Interference?
- d) State the sampling theorem.
- e) What is non-linear Quantization?
- f) What is phase reverse keying?
- g) What is the need of QAM digital modulation?
- h) Explain coherent detection.
- i) What is Costar loop?
- j) Define word interleaving.

Section-B

2. Describe the process of PCM with example.
3. What are companding laws? Explain their similarities and differences.
4. Determine the signal to quantization noise ratio of a delta modulator with a bit rate of 64 kb/s and an input signal bandwidth of 4 KHz.
5. Determine the error distance in a Db for a BPSK modulation scheme.
6. Compare various encoding techniques.

Section-C

7. Describe the DBPSK transmitter and receiver.
8. Calculate the error probability $P(e)$ of a 16 QAM modulation scheme for various levels of E_b/N^0
9. Write short notes on:
 - (a) Simulation of digital systems
 - (b) PSK