

(MDC-11) INFORMATION THEORY AND CODING

Theory paper: 100 Marks

Sessional: 50 Marks

Information theory: Marginal, joint and conditional entropy, information rate, mutual information, channel capacity of various channels, Cascaded channels, repetition of signals

Shannon's theorem, Shannon - Hartley theorem, BW-S/N ratio trade off, continuous channel, negative entropy.

Coding: Irreducibility, separability, coding efficiency, source encoding, Shannon-Fano code, Huffman code, Data compression,

Channel encoding - minimum distance, error detection and correction, FEC and ARQ, block code, convolutional codes, cyclic codes, signal error correction, multiple error correction, Burst error correction, Cryptography, Encryption, Decryption,

Suggested Text Books and References:

- 1 Information theory: F.M Reza, McGraw Hill
- 2, Digital and Analog Communication Systems: K.Sam Shanmugam, John Wiley
- 3, Communication Systems: Analog and Digital: Singh & Sapre, TMH, 1995.
4. Digital Communication: B. Sklar, Pearson Education Asia.