

Answer any FIVE questions
All questions carry EQUAL marks

1. a) What are different types of errors and explain the control strategies.
b) State and prove the theorems related to minimum distance of linear block codes.
2. a) Explain encoding and decoding circuits of a systematic (n,k) codes.
b) Form a parity check matrix for $(15,11)$ hamming code and design a decoder for this.
3. a) List out and prove any five theorems related to cyclic codes..
b design an encoder and decoder for the $(7,4)$ cyclic code generated by $1+X+X^3$
4. a) Explain the operation of any two error trapping decoder circuit.
b) Consider $(4,3,2)$ convolutional code. Find the generator sequences of the code. Find the generator matrix G . Find the code word v corresponding to the information sequence $u=(110, 011, 110)$.
5. a) Explain about viterbis decoding algorithm.
b) Explain the application of sequential decoding of convolutional codes.
6. a) Explain about $(2,1,3)$ Convolutional Encoder
b) Consider $(2,1,2)$ code with $G(D)=[1+D^2, 1+D+D^2]$. Find the GCD of the of its generator polynomial.
7. a) Determine the generator polynomial for all the primitive BCH codes of length 7.
b) Explain the syndrome computation circuit for the double error correcting $(15,7)$ BCH Code.
8. Write short notes on the following
 - a) Bounds on Burst Error Control
 - b) Encoder of the Burst Error control Code
 - c) Interleaved Cyclic
