

GROUP C (Long Answer Type Questions)

Answer any four questions.

6*4=24

- 1) In CRC, show the relationship between the following entities(size means number of bits)-
- The size of the dataword and the size of the codeword.
 - The size of the divisor and the size of the remainder.
 - The degree of the polynomial generator and the size of the divisor.
 - The degree of the polynomial generator and the size of the remainder.
- 2) Explain hamming code in detail. Find the minimum & maximum Hamming distance for the coding scheme mentioned below:-
- d(00000,01011)
 - d(00000,10101)
 - d(00000,11110)
 - d(01011,10101)
- 3) Discuss the relative advantages and disadvantages of 'digital communication' over 'analog communication'. A digitized voice channel is made by digitizing a 4KHz bandwidth analog voice signal. We need to sample the signal twice the frequency. Assuming each sample requires 8 bits calculate the bit rate.
- 4) List Error detection & error correction techniques. Explain how single bit error differs from burst error. A code scheme has a Hamming distance $d_{min} = 4$. What is the error detection & correction capability of this scheme?
- 5) For an AM modulator with carrier frequency of 150 kHz and a modulating signal frequency of 10 kHz, determine the:
- Frequency for the upper and lower sideband
 - Bandwidth.
 - Sketch the output frequency spectrum.