CSE320
Assignment 04
Deadline: 30th August, 2023

Q1. How does a **single-bit** error differ from a **burst** error?
In a block code, a dataword is **20** bits and the corresponding codeword is **25** bits. What are the values of **k, r, and n** according to the definitions in the text?
How many **redundant bits** are added to each dataword?

Q2. In CRC, if the dataword is **5** bits and the codeword is **8** bits, how many **0s** need to be added to the dataword to make the dividend?
What is the size of the **remainder**?
What is the size of the **divisor**?

Q3. Given the dataword **10100110101** and the divisor **10101**, show the generation of the CRC codeword at the **sender side** (using binary division).
Now convert the dataword and divisor in **polynomials** and show the generation of the CRC codeword at the **sender side**.
[*For practice, corrupt the leftmost bit or any other bit, and verify if the CRC technique is able detect the error at the receiver side or not.*]
Online tool: CRC online calculator

Q4. A sender has four data items to send: **466F, 726F, 757A, and 16E.**
What is the value of the **Checksum**? Show both the sender and receiver side.

Q5. a) What is the function of the twisting in the twisted-pair cable?
b) What are the three usages of the coaxial cable?
c) What is the purpose of cladding in an optical fiber?