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| **KING SAUD UNIVERSITY**  **COLLEGE OF COMPUTER AND INFORMATION SCIENCES**  **COMPUTER SCIENCE DEPARTMENT** | | | |
| **CSC 329: Computer Network** | **Tutorial 5** | | **1st Semester 1437-1438** |
| **Name:** | | **Student ID:** | |
| **Serial Number:** | | **Section Number:** | |

**Part1: Multiple-Choice Questions**

1. **Which error detection method involves polynomials?**

a. Simple parity check

b. Two-dimensional parity check

c. CRC

d. Checksum

**2) In cyclic redundancy checking, the divisor is \_\_\_\_\_\_\_ the CRC**

a. The same size as

b. 1 bit less than

c. 1 bit more than

d. 2 bits more than

**3) In CRC, if the data unit is 111111 and the divisor 1010, what is the dividend at the transmitter?**

a.111111000

b.1111110000

c.111111

d.1111111010

**4) In CRC there is no error if the remainder at the receiver is \_\_\_\_\_\_\_\_**

a. Equal to the remainder at the sender

b. Zero

c. Nonzero

d. The quotient at the sender

**5) Which error detection method can detect a burst error?**

a. simple parity check

b. Two-dimensional parity check

c. CRC

d. (b) and (c)

**6) At the CRC generator, \_\_\_\_\_\_\_ added to the data unit after the division process.**

a. 0s are

b. ls are

c. The polynomial is

d. The CRC remainder is

**7) Which error detection method uses ones complement arithmetic?**

a. Simple parity check

b. Two-dimensional parity check

c. CRC

d. Checksum

**Part2: Exercises**

1) Given the sequence **1 0 0 1 1 1 1 1** and a divisor of **10011**, find the CRC.

2) Assume that the following frame **(1 1 0 0 1 1 0 1 0 1 1 0)** is received across a data link using CRC for error detection. And the divisor is represented by the equation of ***x*4 + *x* + 1**. Check whether the received frame is correct or incorrect. If the frame is correct, then deduce the original message.

3) Find the polynomial equivalent of **011000111001.**

4) Find the checksum for the following bit sequence. Assume a 16-bit segment size.

**0001111010110001**

**1001001001000111**

5) Suppose the receiver receives

**1001001110010011 1001100001001101 0100111100000111**

Check if the data received has error or not by using Checksum.