



Program: BC (SE)

Subject: Digital Logic Design (Theory)

Assignment Number: 01

Course Code: SEC-201

EDP Code: 102002015

Spring Semester 2020

Note: Attempt all questions.

Q.1 What is the weight of 7 in 1799_{10} ?

Q.2 Give the value of each digit in 5436_{10} ?

Q.3 Convert the following:

a. $11111111_2 = (?)_{10}$

b. $127_{10} = (?)_2$

c. $45.25_{10} = (?)_2$

d. $1000000.1010_2 = (?)_{10}$

e. $4D7F_{16} = (?)_{10}$

f. $128_{10} = (?)_{16}$

g. $3A6F_{16} = (?)_2$

h. $1100001111100101_2 = (?)_{16}$

i. $6173_8 = (?)_{10}$

j. $169_{10} = (?)_8$

k. $3740_8 = (?)_2$

l. $1010110001011111_2 = (?)_8$

m. $2A7D_{16} = (?)_8$

n. $7503_8 = (?)_{16}$

o. $11111111_2 = \pm (?)_{10}$

p. $-12_{10} = (?)_2$

q. $156_{10} = (?)_{BCD}$

r. $100001110000_{BCD} = (?)_{10}$

s. $1001010_2 = (?)_{Gray}$

t. $10101111_{Gray} = (?)_2$

u. $0100\ 0000 = (?)_{ASCII-Small}$

v. $0110\ 0000 = (?)_{ASCII-Capital}$

w. $111000 = (?111000)_{Even\ parity}$

x. $101101 = (?111000)_{Odd\ parity}$

hint: [use 2's complement form]

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Q.4 Calculate each of the following:

a. $11110011_2 + 01011111_2$

b. $10000000_2 - 01111111_2$

c. $1100_2 \times 11_2$

d. $1100_2 \div 10_2$

e. $01111111_2 - 00000111_2$

hint: [use 2's complement form]

f. $01101010_2 \times 11110001_2$

hint: [use 2's complement form]

g. $10001000_2 \div 00100010_2$

hint: [use 2's complement form]

h. $FC_{16} + AE_{16}$

i. $F1_{16} - A6_{16}$

j. $6D_{16} - 3F_{16}$

hint: [use 2's complement form]

k. $00010110_{BCD} + 0001\ 0101_{BCD} = (?)_{10}$

hint: [take care of invalid BCD code]

Q.5 Apply modulo-2 to $1100_2 + 1011_2$.

Q.6 Apply CRC to the data bits 10110010_2 using the generator code 1010_2 to produce the transmitted CRC code.

Q.7 Assume that the code produced in problem Q.6 incurs an error in the most significant bit during transmission. Apply CRC to detect the error.

Wish You All the Best