



**Program: BC (CS)**  
**Subject: Digital Logic Design**  
**Assignment Number: 01**  
**Course Code: CSC-201**  
**EDP Code: 102002077**  
**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*