NUMBER SYSTEM

1. Solve the following questions

(ABC.53)16 =(…….)10 =(…….)8 = (…………)2

(742.53)8 =(…….)16 =(…….)10 = (…………)2

(892.63)10 =(…….)16 =(…….)8 = (…………)2

(1101.011)2 =(…….)10 =(…….)8 = (…………)16

(542.53)6 =(…….)9

1. Find out the base of the number system in which

(

(ii)

(iv)√41=5

(v) 23+44+14+32=223

(vi) (431)x=(116)10

(ix) 24+17=40

1. Add the two numbers

(1101.01)2 + (1011.011)2

(1001.01)2 + (1010.011)2

1. Subtract the two numbers

(11001)2 - (1011)2

(11010)2 - (10011)2

1. Subtract using 1’s complement method

(11001)2 - (1011)2

(11010)2 - (10011)2

1. Subtract using 2’s complement method

(11001)2 - (1011)2

(11010)2 - (10011)2

1. Add the BCD numbers

679.6 + 548.6

594.9 + 836.5

1. Convert binary code to gray code

(1011011)2

(101101011)2

1. Convert gray code to binary code

(101101011)2

(1011011)2

1. What is the largest binary number that can be expressed with 12 bits? What is its decimal equivalent?
2. What is the largest octal number that can be expressed with 4 bits? What is its binary equivalent?
3. What is the largest hexadecimal number that can be expressed with 8 bits? What is its octal equivalent?
4. Design basic gates using NAND and NOR gates.
5. Design xor and xnor gates using universal gates.
6. Realize the expression F=A’+BC using

(a) Basic logic gates

(b) Universal gates (NAND and NOR)