Vidush Somany Institute of Technology and Research, Kadi

Semester: 3 (CE/CSE/IT)

Assignment-1

Subject Name: Digital Electronics

Chapter-1 Number Systems and Codes

<table>
<tr><th>No.</th><th>Questions</th></tr>
<tr><td>1.</td><td>Write the first 20 decimal digits in base 3.</td></tr>
<tr><td>2.</td><td>Convert the decimal number 250.5 to Base 3, Base 4, Base 7, Base 8, Base 16</td></tr>
<tr><td>3.</td><td>Convert the following decimal numbers to binary
1. 12.0625 2. 10^4 3. 673.23 4. 1998</td></tr>
<tr><td>4.</td><td>Convert the following binary numbers to decimal
1. 10.10001 2. 101110.0101 3. 1110101.110 4. 1101101.111</td></tr>
<tr><td>5.</td><td>Convert the following numbers from the given base to the bases indicated.
a) decimal 225.225 to binary, octal and hexadecimal
b) binary 11010111.110 to decimal, octal and hexadecimal
c) octal 623.77 to decimal, binary and hexadecimal
d) Hexadecimal 2AC5.D to decimal, octal and binary</td></tr>
<tr><td>6.</td><td>Convert the following numbers to decimal
<table>
<tr><td>a) $(1001001.011)_2$</td><td>e) $(0.342)_6$</td></tr>
<tr><td>b) $(12121)_3$</td><td>f) $(50)_7$</td></tr>
<tr><td>c) $(1032.2)_4$</td><td>g) $(8.3)_9$</td></tr>
<tr><td>d) $(4310)_5$</td><td>h) $(198)_{12}$</td></tr>
</table></td></tr>
<tr><td>7.</td><td>Obtain 1’s and 2’s complement of the following binary numbers
1010101, 0111000, 0000001, 10000, 00000.</td></tr>
<tr><td>8.</td><td>Obtain 9’s and 10’s complement of the following binary numbers
13579, 09900, 90090, 10000, 00000.</td></tr>
<tr><td>9.</td><td>Perform the subtraction with the following decimal numbers using 1.10’s and 2. 9’s complement
a) 5250-321 b) 3570-2100
c) 753-864 d) 20-1000</td></tr>
<tr><td>10.</td><td>Perform the subtraction with the following binary numbers using 1.2’s and 2. 1’s complement
a) 11010-1101 b) 11010-10000
c) 10010-10011 d) 100-110000</td></tr>
<tr><td>11.</td><td>Represent the decimal number 8620
a) BCD
b) Excess-3 code
c) 2, 4, 2, 1
d) Binary number</td></tr>
</table>

12.	**Express the following switching circuit in binary logic notation.**