COMSATS University, Vehari Campus
Department of Computer Science
Sessional-I Spring-19

Class: BSCS/BSSE
Subject: Digital Logic Design
Total Time Allowed: 1 hour.

Date: 20-03-2019
Instructor: M Rehan Ashraf
Max Marks: 20

Name: Ahmer Iqbal   Registration # SP18-BSE-002

Note: Attempt all questions, be specific and to the point. Use of Calculators is not allowed. Clearly show the detail of your work.

Q#01:

1) Convert 29.25 into binary, Octal and Hexadecimal number system. (3)
2) Convert 1001.001010 into decimal number system. (2)
3) Write the output Y in terms of input variables for the circuit given below (5)

$(CD + \bar{B}) \cdot A + A\bar{B}C$

$A\bar{B} + A\bar{C}D + ABC$
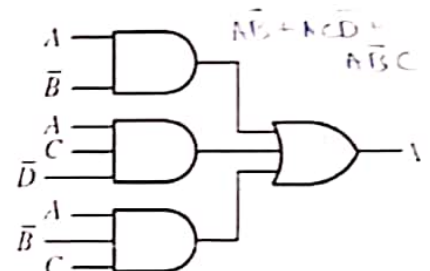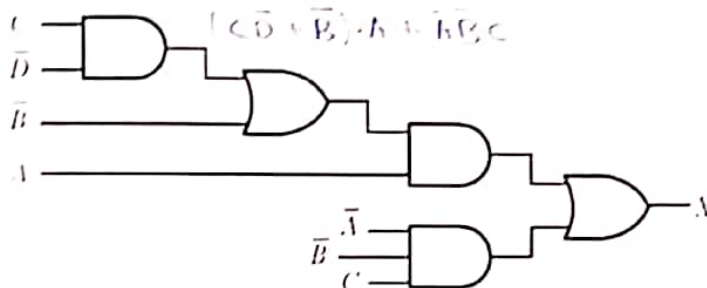
Q#02: In a certain application a 4-bit binary number sequence cycles from 1111 to 0000 periodically. There are four bit changes, and because of circuit delays, these changes may not occur at the same instant. For example, if the LSB changes first, the number will appear as 1110 during the transition from 1111 to 0000 and may be misinterpreted by the system. Illustrate how the Gray code avoids this problem. Also write down the sequence of grey codes starting from 1111 to 0000. (3)

Q#03: Use the Karnaugh Map method to implement the minimum SOP expression for the logic function specified in the truth table given below. (7)

A	B	C	D	Y Output	
0	0	0	0	0	m_0
0	0	0	1	1	m_1
0	0	1	0	1	m_2
0	0	1	1	0	m_3
0	1	0	0	0	m_4
0	1	0	1	0	m_5
0	1	1	0	1	m_6
0	1	1	1	1	m_7
1	0	0	0	1	8
1	0	0	1	0	9
1	0	1	0	1	10
1	0	1	1	0	11
1	1	0	0	1	12
1	1	0	1	1	13
1	1	1	0	0	14
1	1	1	1	1	15

Good Luck