National University of Computer & Emerging Sciences, Karachi
Department of Computer Science
SPRING 2022

| **Course Code:** EE-1005	**Course Name:** Digital Logic Design
Course Teacher: Hamza Ahmed	**Assignment No:** 02

Instructions for Submission:

1. *Use A4 size paper for solution of each Question.*

2. *You are required to Submit Assignment in scanned copy on Google classroom.*

3. *The deadline for submission is **20 April,2022.***

4. ***Copying is not allowed at all.** Any similarities among the submitted files of any student will result in **zero marks**.*

CLO #02   (Total Marks -10)

1. Determine the input conditions needed to cause the output in figure to go to its active state.
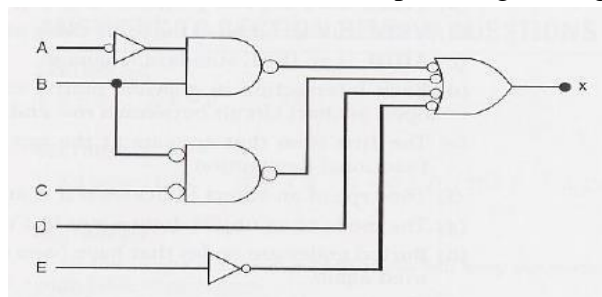
2. The circuit figure is supposed to be a simple digital combination lock whose output will generate an active –LOW signal for only one combination of inputs. Modify the circuit diagram so that it represents more effectively the circuit operation. Also modify the circuit for active HIGH. Writdown the statements for both(active HIGH and LOW output).
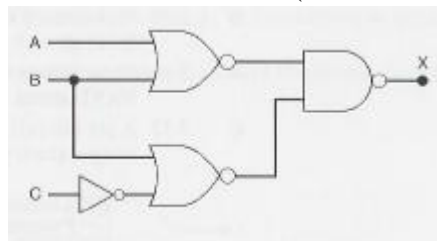
3. Implement a full adder circuit by using: (a)3 – to - 8-line Decoder
   (b) 4 X 1 Multiplexers.

4. Construct a 16 X 1 multiplexer with two 8x1 and one 2x1 multiplexers. Use block diagrams.
5. Implement the following Boolean function using decoder.

$$F(A, B, C, D) = \Sigma\ (1, 2, 3, 7, 9, 13, 15)$$