National University of Computer and Emerging Sciences

Lahore Campus

Digital Logic Design (EE1005)

Lab final Exam

Date: May 22nd 2024 1:00 PM – 4:00 PM

Total Time (Hrs): 2.5

Total Marks: 50

Total Questions: 2

Course Instructor(s)

Ms. Abeer Bashir

Ms. Saira Arif

MS. Ayesha Ejaz

Ms. Shazia Hussain

Ms. Azka Choudhry

Ms. Anum Tariq

Ms. Mahnoor Sami

Mr. Salman Mubarik

Mr. Zummar Saad

[redacted] Roll No

[redacted] Section

[redacted] Student Signature

All CS sections

Attempt all the questions.

Instructions:

- **Save your .cct file with your roll number and Question number**
- **Take screen shot of your circuit before you quit**
- **Make folder, name it with Roll number and your Name**
- **Put your .cct files and screen shots in the Zip/compressed folder and submit**
- **Zip/compress it and submit to allocated folder**
- **Show the required steps and label properly to get the full credit**
- **Solve the paper in the sequence provided in the question paper i.e Question 1 should be solved before question 2 on answer sheet**

CLO 4: Construct and utilize thye basic functional block to design combinational circuit

Q1: Design a up-down counter from 0-7 and 7-0 such that when counter moves up/down it should indicate its change of numbers on two separate seven segment devices. [10+15]

CLO 5: Design and demonstrate synchronous/asynchronous

Q2: Design a circuit that has input X (A, B, C, D) and one output Y. The output will be equal to logic 0 when the binary value of the input X (A, B, C, D) is equal to X1, X2, X3 or X4. The output is logic 1 otherwise. These four binary values of input X are derived from your Roll No. i.e. If Roll No is 23-1234 so the binary value of

X1= (1stdecimal digit of your Roll No + 4) = 1+4 = 0101

X2= (2nd decimal digit of your Roll No + 4) = 2+4 = 0110

X3= (3rddecimal digit of your Roll No + 4) = 3+4 = 0111

X4 = (4 th decimal digit of your Roll No +4) = 4+4 = 1000

- Implement the designed circuit in Logic Works
- Submit the truth table and circuit Diagram

[10+15]