# National University of Computer & Emerging Sciences, Karachi

**Spring-2020 EE-Department**

**Final Examination**

**11th August 2020, 8:00 am – 9:00 am**

| Course Code: EL227 | Course Name: Digital Logic Design Lab |
|---|---|
| Instructor Name: Muhammad Junaid Rabbani, Rukhsar Ali | |
| Student Roll No: | Section No: |

**Time**: 1 Hour **Max Marks:** 30 points

Instructions for offline Exam:

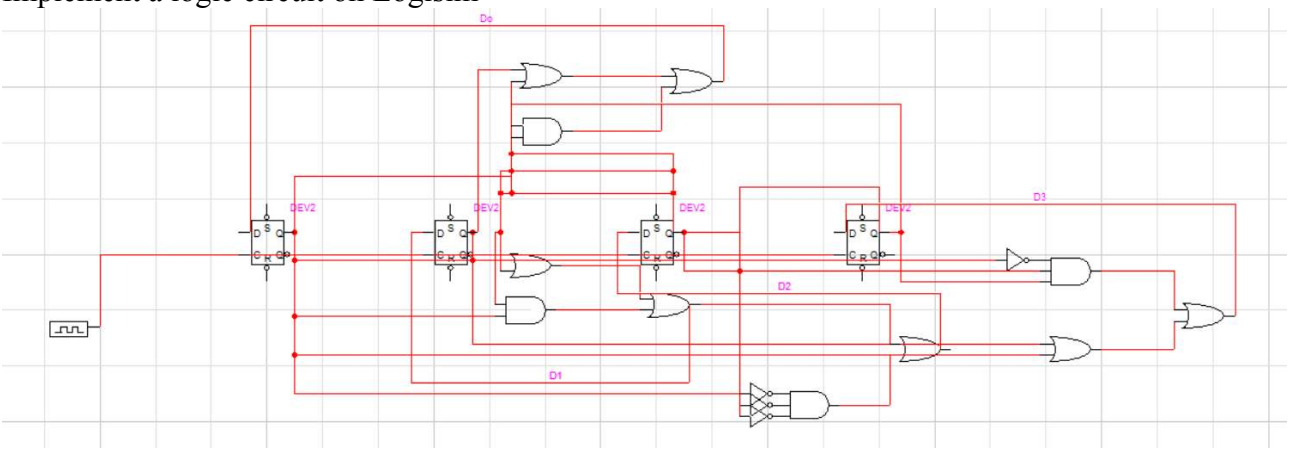
1. This is an offline exam, timing for solving problem is one hour and for submission of pdf file, you have 20 minutes.
2. Due time to submit this paper is 09:20 AM.
3. Read question completely before answering it. Paper contains 1 question, 3pages.
4. Copied Solution of this exam will be cancelled and will be marked as Zero.
5. You need to submit via google classroom (LMS) and email.
6. Your devices should be charged and should have data package to avoid late submission. No late submission is allowed (no excuse would be acceptable such as load shedding or no availability of data).
7. There will be no invigilator to remind you that time is about to end. Therefore, plan to finish the exam 10 minutes before the end time. Only then you will be able to finish it on time.
8. Scan (with camscanner or any other app) and convert the answer sheets into a single pdf file
9. Rename the pdf file as given next. If the course code is EE227, your section is section A and roll number is 18K1234, then rename the file as EE227SECA18K1234FINAL.pdf. There should be no spaces in the file name. All letters should be in uppercase.
10. Upload the file on Google Classroom and also email it to the teacher's nu official email address. Kindly note that no re submission of the file would be allowed. Please note that the file uploaded on Google Classroom and sent by email to the teacher's email address should completely match. In case of mismatch, your case will be forwarded to the DC committee for use of unfair means during the exam
11. This is an open book exam. In an open book exam, you are allowed to get help from all the material resources. They may include books, eBooks and internet resources. However, you are not allowed to get any help from a person, be they a friend, sibling or any other person. If it is suspected that you have collaborated with anyone during the exam, your case would be forwarded to the disciplinary committee for use of unfair means during the exam.
12. Not following any of above given instruction may result in awarding zero marks.

**Question 1 (CLO3/C3):** Design a counter with the irregular binary count sequence directed by your roll number using D Flip Flop. If your roll number is K18-1234, states would be

1 → 8 → 2 → 3 → 4 → □□□ □□□□□□□□□□ □□□□

(No digit can be used more than ones and repeating digit would be ignored as such in highlighted "1" in given example K18-1234).

a) Implement a logic circuit on Logisim




b) Generate Truth Table on Logisim