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| **National University of Computer and Emerging Sciences, Lahore Campus** | | | | |
| C:\Users\saif\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\final design.jpg | **Course:** | **Digital Logic Design** | **Course Code:** | **EE1005** |
| **Program:** | **BS (Computer Science)** | **Semester:** | **Spring 2022** |
| **Duration:** | **10 Minutes** | **Total Marks:** | **10** |
| **Paper Date:** | **14-03-2022** | **Weight** |  |
| **Section:** | **A** | **Page(s):** | **1** |
| **Exam:** | **Quiz2** | **Reg. No.** |  |
| **Instruction/Notes:** | **Plagiarism will be dealt seriously causing an F in course** | | | |

Q1 In a storage room, entrance via door **D1** is highly secured. Doors can be opened by the following signals:

* Control Signal ‘**C**’ gives ‘1’ when Control Room allows.
* Pressure sensor ‘**P**’ installed in front of doors, gives ‘1’ when a person stands on it (pressing the sensor).
* Finger Print sensor ‘**F**’ gives ‘1’ when a fingerprint is successfully recognized.

The Doors open only under the following conditions:

* Door 1 ‘**D1**’ is opened when Pressure sensor is pressed and fingerprint is successfully recognized.
* Door 1 ‘**D1**‘can also be opened when control signal is received and pressure sensor is pressed.

**Your task is to**

1. Complete the Truth Table given below based on the above problem description. (2 marks)
2. For the output function (Hint D1), write the Boolean expressions in **Sum-of-Product Form** (3 marks)
3. **Simplify/minimize it using k map** (5 marks)