## National University of Computer and Emerging Sciences, Lahore Campus



Course: Digital Logic Design
Program: BS (Computer Science)

20 Minutes 14-June-2021

Section: C Exam: Quiz 1

**Duration:** 

Paper Date:

| Course Code: | EE-227 | Semester: | Spring 2021

Total Marks: 15
Weight 3 %
Page(s): 2
Reg. No.

Instruction/Notes:

Calculators are strictly not allowed in all exams

Plagiarism will be dealt seriously causing an F in course

1. In an 8 bit number system, solve  $(21)_8 + (5.2)_{10} = ($  )<sub>16</sub> (Show Working)

2- Prove the identity  $A\overline{D} + \overline{A}B + \overline{C}D + \overline{B}C = (\overline{A} + \overline{B} + \overline{C} + \overline{D})(A + B + C + D)$ 

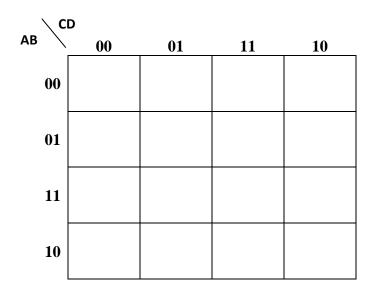
3- Optimize the following expressions  $F(A, B, C, D) = \sum m(2, 3, 5, 7, 8, 10, 12, 13)$ 

Sum-of-products =

Product of-sums forms=

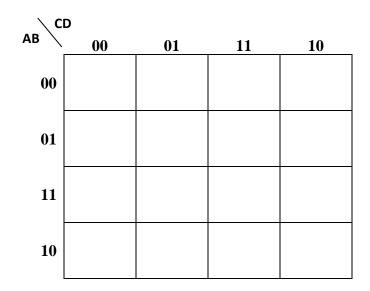
Use only given **KMaps** to optimize the function into:

(i) Product of Sums (POS) form



$$\mathbf{F}(\mathbf{A},\mathbf{B},\mathbf{C},\mathbf{D}) = \underline{\hspace{1cm}}$$

## (ii) Sum of Products (SOP) form



$$\mathbf{F}(\mathbf{A}, \mathbf{B}, \mathbf{C}, \mathbf{D}) = \underline{\hspace{1cm}}$$