



# National University

of Computer & Emerging Sciences Peshawar Campus



Student Name: \_\_\_\_\_

Roll No: \_\_\_\_\_

Program: CS 20ABCD Examination: Mid

Total Marks: **64** Weightage: **30**

Semester: SPRING – 2021 Time Allowed: 2:30 hour

Date: **Wednesday May 26<sup>th</sup>, 2021**

Course: **EE227 DIGITAL LOGIC DESIGN**

Instructor: **Shakir**

Question 1	Question 2	Question 3	Question 4	Question 5	Total	Instructor Signature
20 minutes	20 minutes	20 minutes	30 minutes	30 minutes	120 minutes	
10	10	13	16	15	64	

**NOTE:** Attempt all questions. *In case of an ambiguity in a question, make an assumption, write your assumption and carry on with the question.*

**CALCULATORS ARE NOT ALLOWED**

**Question No. 5 (15 marks) (Estimated time: 30 mins)**

Use a Karnaugh map to minimize the following expression

$f(A, B, C, D) = \sum m(0, 1, 2, 3, 4, 7, 8, 9) + \sum d(10, 11, 12, 13, 14, 15)$