

**National University**



of Computer

and

Emerging Sciences

Chiniot

-

Faisalabad Campus



**EE1005 – Digital Logic Design**

**Quiz# 4**

**Instructor:** Muhammad Adeel Tahir **Section:** CS-2F **Time:** 20 Minutes

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Roll No: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Total: 15 marks**

***Note:*** *Use the back side of the page if needed. Make sure the handwriting is neat and clean while drawing the circuit, quiz will be marked as 0 if attempted in a writing that is not readable at all.*

**Question:** Design a combinational circuit with three inputs, x, y, and z , and three outputs, A, B , and  C . When the binary input is 0, 1, 2, or 3, the binary output is one greater than the input. When the binary input is 4, 5, 6, or 7, the binary output is two less than the input.

**No of Inputs: \_\_\_\_ No of Outputs: \_\_\_\_\_\_ (1 marks)**

**Truth Table: (10 marks)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Decimal** | **X** | **Y** | **Z** | **A** | **B** | **C** | **ROUGH** |
| **0** |  |  |  |  |  |  |  |
| **1** |  |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |

**Rough Work:**

**Equations: (0.5 each = 3 marks)**

**A = ∑ B = ∑ C = ∑**

Simplified expressions:

**A = \_\_\_\_\_\_\_\_\_\_\_\_ B = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ C= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Circuit Diagram: (6 marks)**

**x \_**

**y \_**

**z \_**