Bahria University, Islamabad Campus

Department of Computer Science

Final Examination

Class/Section: BSCS 2 A&B

(Fall 2021 Semester)

Paper Type: Descriptive

Course: Digital Logic Design | Date: 2/17/2022

Course Code: CEN120 | Time: 1300 to 1530

Faculty's Name: Muhammad Usman | Max Marks: 50

Time Allowed: 2.5 Hrs | Total Pages: (1 including this)

INSTRUCTIONS:

Student's Name: _____ Enroll No: _____

(USE CAPITAL LETTERS)

Question # 1 (5+5=10 Marks)

a. Design a combinational logic circuit that accepts two bit binary number and generates an output binary number equal to the difference of the inputs?

b. Design a combinational logic circuit that accepts two bit binary number and generates an output binary number equal to the difference of the inputs?

Question # 2 (6+6=12 Marks)

a. Huawei a famous company is working on a machine which will convert the octal to binary; you are assigned a task to design an encoder for this machine including truth table and implementation.

b. Assume that you are working on your project and you are required an 8x1 multiplexer but unfortunately this is not available in market. So does the same job using 4x1 multiplexer using block diagram and truth table?

Question # 3 (7+7=14 Marks)

a. Design a T flip-flop using Nand Gate and also draw the output table.

b. Design a Johnson counter for the 4^{th} clock and also draw a count sequence table.

Question # 4 (7+7=14 Marks)

a. Draw a state diagram and truth table for traffic lights for following types;

i. Mealy State Machine

ii. Moore State Machine

End of Question Paper