International Islamic University Chittagong

Department of Computer Science & Engineering

Program: B.Sc. in CSE Semester: 3rd

Mid Term Examination, Spring-2023

Course Code: CSE-2323 **Course Title: Digital Logic Design**

Time: 1 Hour 30 minutes **Total Marks: 30**

Answer the following Three (3) questions. Each question carries 10 marks.

Question : 1	a. Write down the advantages of digital systems over analog systems with proper example.	2
	b. Define redundancy theorem with proper example.	2
	c. Define Positive and negative logic with truth table. "Excess-3 code is self-complementary code" Is it true or false? Justify your comment.	2
	d. Compare between BCD Code and Binary numbers. Mentioned the rules applied for BCD Addition.	1+2=3
	e. Just one lines, write down the limitations of BCD Addition.	1
Question : 2	a. How can we identify whether a code is self-complementary or not? Explain with proper example. Write down major properties of Gray Code. Convert 10110110 Gray Code into Binary Code.	2+1+2=5
	Or	
	a. If we have 4 inputs NAND Gate then how many 2 input NAND Gates are required to implement it? Boolean expressions to NAND Gate implementation: Y=A˜+BC˜(˜ means Complement)	2+3=5
	b. What are the key features of Karnaugh map? Solve the following using Karnaugh Map: $F(A,B,C,D,E)=\sum_m(0,1,6,7,8,9,21,22,23,29,31)$	5
Question : 3	a. Mention the rules for designing combinational circuit with proper example.	3
	Or	
	a. What are the necessary conditions for check board configuration? Justify it with Full Adder Circuit.	3
	b. Construct a Half Adder using NAND gates.	2
	c. Explain 2 bit comparator with proper circuit diagram.	2

N.B: The meanings of symbol enclosed in bracket (˜) is complement.

****The End****