CRAWFORD UNIVERSITY,
FAITH CITY IGBESA
COLLEGE OF NATURAL AND APPLIED SCIENCES
DEPARTMENT OF COMPUTER AND MATHEMATICAL SCIENCES
SESSION: 2021/2022 R A I N S E M E S T E R COURSE CODE: CSC 202
COURSE TITLE: LOGIC DESIGN AND COMPUTER HARDWARE
UNITS: 3 - TIME: 3 HOURS

Answer **Four (4)** questions in all and each Question carries **15 marks.**

Question One

What is the meaning of logic? Where exactly are logic gates used in computer system? **4 marks**
How can you explain Boolean logic? Draw the truth table of three (3) elements **x**, **y** and **z** as input, and **y+z**, **x.(y+z)**, **x.y**, **x.z** and **x.y+x.z** as output. What is your observation? **5 marks**
Why do computers need logic gates? **2 marks**
Where or when a programmer is making use of these following keywords (**if**, **or**, **and**, **also**, **end**, **when**, **then**)? x=1 then x' is…., If x=1 and y=0 then **x+y** is…., **x.y** is…., **xy'** is…..**, y+ y'** is….. **4 marks**

Question Two

Give the full meaning of RAM, ROM, PLD, SRAM, DRAM. Define Memory **4 marks**
What are the main operations done inside computer system? **3 marks**
Give a comprehensive explanation about Logic Design and computer hardware **4 marks**
What is the role of the memory? Write the difference between RAM and ROM **4 marks**

Question Three

If XX=X, X+X=X and X+1=1, demonstrate this following equivalence X+XY=X and (X+Y)X=X **4 marks**
What is the area of computer science that deals with the design of electronic circuits? **2 marks**
Where exactly are logic gates used in computer system? The name of the Component(s) **4 marks**
Calculate **d1.**$(0111)_2 + (1000)_2$? **d2.**$(0110)_2 + (1001)_2$? Demonstrate X+(Y.Z) = (X+Y).(X+Z) **5 marks**

Question Four

Give the full meaning of these acronyms CPU, GPU, RAM, SSD, HDD. What are they representing? **4 marks**
What are the different types of computer system? Give explanation to differenciate each one of them **4 marks**
What does the CPU represent in the computer? The CPU consists of three units. Name them **4 marks**
Enumerate the five (5) Input and five (5) output peripherals of a computer system **3 marks**

Question Five

Who is a designer, what are the steps to become a programmer? **4 marks**
Draw Von Neumann architecture and Stored-program computer **2 marks**
There is different area of logic concept. How many and mention the different type of logic? **3 marks**
What is the difference between computer hardware and computer software with five (5) examples each of them.
What is computer system? List five Removable medias **6 marks**

Question Six

Define **DESIGN** and mention the 3 major points to execute a program **4 marks**
Demonstrate these following expressions **b1**. A+(B.C)=(A+B).(A+C), **b2**. A+A.B=A, **b3**. A(A+B)=A.
Base on the appropriate theorems. **5 marks**
Who invented logic gate? Write the date. How many and list the logic gates, draw them **4 marks**
Convert $(127)_{10}$ in (_ _ _ _ _ _ _)$_2$ and $(125)_{10}$ in (_ _ _ _ _ _ _)$_2$.
Explain in writing how do you get you answer? **2 marks**

Moderated