CRAWFORD UNIVERSITY, FAITH CITY IGBESA
COLLEGE OF NATURAL AND APPLIED SCIENCES
DEPARTMENT OF COMPUTER AND MATHEMATICAL SCIENCES
HARMATTAN SEMESTER **SESSION: 2018/2019**

COURSE CODE: ICT 323 **TITLE: SWITCHING SYSTEM**
UNITS: 3 **TIME ALLOWED: 3 HOURS**

INSTRUCTION: ANSWER ANY FOUR QUESTIONS

QUESTION ONE (15 MARKS)

(A) (i) Define switching (2mrks)
(ii) Justify the need for switching (3mrks)
(B) Discuss the subsystems of a telecommunication switching system (6mrks)
(C) Discuss the Hierarchy of Networks in Switching systems (4mrks)

QUESTION TWO (15 MARKS)

(A) (i) What are circuit-switched (CS) networks? (1mrk)
(ii) Discuss the different phases involved in circuit-switched networking of signals among multiple nodes (4mrks)
(B) Illustrate and discuss a switch's basic building blocks (5mrks)
(C) (i)What is a State Transition Diagram (S.T.D)? Identify and describe its components (5mrks)

QUESTION THREE (15 MARKS)

(A) Differentiate between circuit switching and packet switching. What is the most important feature of each of the methods? (5mrks)
(B) Draw a basic signal exchange diagram and briefly explain the process of signal exchange (5mrks)
(C) (i) Briefly discuss the three (3) traditional methods of switching (3mrks)
(ii) Differentiate between the two methods of packet switching (2mrks)

QUESTION FOUR (15 MARKS)

(A) Draw the state transition diagram (S.T.D.) for originating calls only (5mrks)
(B) Illustrate the structure of frames use in packet switching, explaining the functions of the constituent parts (5mrks)
(C) (i) Define the following concepts:
- PBX (2mrks)
- BISDN (2mrks)
- ATM (2mrks)

QUESTION FIVE (15 MARKS)

(A) (ii) The ATM reference model has three (3) planes, discuss them (3mrks)

(B) (i) Differentiate between the structure of the packet frames used in ATM and that of SONET (4mrks)

(ii) The concept of ATM is based on four assumptions. Briefly discuss (2mrks)

(iii) Describe with an appropriate annotated diagram, the ATM reference model (4mrks)

(C) (ii) Itemize the specific benefits of Asynchronous Transfer Mode (ATM) and Synchronous Optical Networks (SONET), one over the other (3mrks)

QUESTION SIX (15 MARKS)

(A) (i) Describe the basic operational structure of ACD (3mrks)

(ii) Identify six (6) capabilities of ACD (3mrks)

(B) Describe the architecture of Synchronous Optical Networks (SONET) (3mrks)

(C) Identify the different methods of multiplexing communication signals, state the merits and demerits of each method identified (6mrks)