NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
SEPTEMBER/OCTOBER 2015 EXAMINATION

SCHOOL OF SCIENCE AND TECHNOLOGY

COURSE CODE: **CIT 344**

COURSE TITLE: **Introduction to Computer Design**

TIME ALLOWED: 3 Hours
INSTRUCTION: Answer any five (5) questions

1a. Describe the process of implementing sequential circuits illustrating this by means of a well-labelled block diagram. (8 marks)

1b. Give the hexadecimal equivalent of the following:

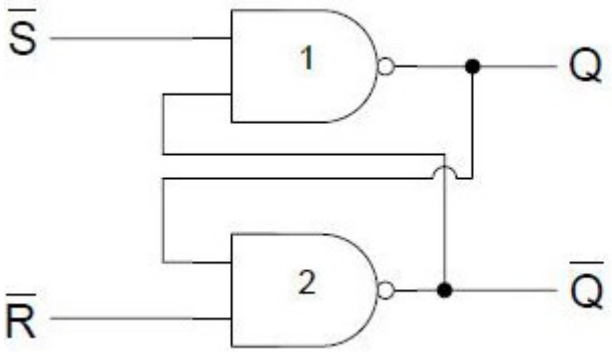
i. 11010110101110010110

ii. 101110010110

(6 marks)

[Total = 14 marks]

2. Study the block diagram provided below carefully, as it will serve as your reference in answering the questions that follow:



2a.Which operation is depicted in the diagram? (4 marks)
2c.Give a detailed explanation of how this process is implemented. (10marks)

[Total = 14 marks]

3a. Give the binary equivalent of the following decimal numbers

i. 4
ii. 3
iii. 7) 2 marks each
iv. 5

(8 marks)

3b. From the perspective of in computer design, list 2 key operations performed on memories. (6 marks)

[Total = 14 marks]

4a. Give a brief explanation of how sequential circuits are implemented, using a well-labelled block diagram to illustrate this. (8 marks)
4b. Distinguish between the two (2) common types of sequential circuits. (6 marks)

[Total = 14 marks]

5a. Find the sum of two 2-digit BCD numbers, 42 and 31. Your result should be in BCD. (8 marks)
5b. List 3 common forms of edge-triggered flip-flops employed in digitallogic circuits. (6 marks)

[Total = 14 marks]

6a. Explain with the aid of a diagram how a full adder can be built from half adders (10 marks)
6b. Describe the term ‘Microprocessor” in computer design. (4 marks)

[Total = 14 marks]

7a. Write a simple program for declaring a CPU “fetch-execute” cycle. (10 marks)
7b. Distinguish between the two (2) main types of sequential circuits. (4 marks)

[Total = 14 marks]