NATIONAL OPEN UNIVERSITY OF NIGERIA
14/16, Ahmadu Bello Way, Victoria Island

SCHOOL OF SCIENCE AND TECHNOLOGY
October, 2013 Examination

Course Code: CIT 344 ***Time:*** 3hrs

Course Title: Introduction to Computer Design ***Course Credit Unit:*** 3

Instruction: Answer any **five (5)** questions.

QUESTIONS

1a. Name any four (4) forms of notations that can be used to capture the behaviour of finite-state machines. (4 marks)

1b. Write short notes on the following:

i. Memory Read Operation (4 marks)
ii. Data Signals (3 marks)
iii. Read/Write Signals (3 marks)

[Total =14 marks]

2a. If gbx contains 1000h and esi contains 5, specify the function of the following instruction:
mov al,8[gbx][esi*5] (4 marks)

2b. Write the standard format for assembly language statements in a typical source file.
(6 marks)

2c. Name each of the fields in the statement you have provided.
(4 marks)

[Total =14 marks]

3a. List and describe the three (3) main forms of flash memory operations.
(12 marks)

3b. Write down the instruction required to move data from one segment of a register ‘ecx’ to another ‘edx’. (2 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, 32 and 45. Your result should be in BCD.

(8 marks)

5b. Specify the procedure required to save a program that is already stored on memory in Assembly Language

(6 marks)

[Total =14 marks]

6. Go through the table below and answer the questions that follow:

Input		**Output**
S	**R**	**Q_{t+1}**
0	**0**	**Invalid**
0	**1**	**1**
1	**0**	**0**
1	**1**	**Q_t**

6a. Specify what this table depicts. (4 marks)

6b. Write the full meaning of S-R in the context of NAND-based latches

(4 marks)

6c. Give the value of the output Q, when S = 0 and R = 1

(6 marks)

[Total =14 marks]

7. Microprocessors normally execute programs which include operating systems and user applications. List and describe the internal components of a typical microprocessor.

[Total =14 marks]