KABARAK UNIVERSITY

UNIVERSITY EXAMINATIONS

2009/2010 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF COMPUTER SCIENCE AND BACHELOR OF ECONOMICS & MATHEMATICS

COURSE CODE: **COMP 110**

COURSE TITLE: **INTRODUCTION TO COMPUTER SCIENCE**

STREAM: **Y1S1**

DAY: **TUESDAY**

TIME: **9:00 – 11:00 A.M.**

DATE: **16/03/2010**

INSTRUCTIONS:

i. **Section A is Compulsory.**
ii. **Attempt any other two questions from Section B.**

PLEASE TURN OVER

SECTION A:

QUESTION ONE:

a. List out the hardware technologies used in building the computers of each of the five generations **(5 Marks)**

b. Identify the different components of the CPU and their roles **(4 Marks)**

c. Explain the following terms: - **(3 Marks)**

- **i.** Firmware
- **ii.** Antivirus
- **iii.** Hardware

d. Convert the following into their respective number systems: -

- **i.** $(4706)_8 = (?)_{10}$ **(2 Marks)**
- **ii.** $(11010011)_2 = (?)_{16}$ **(4 Marks)**

e. Write short notes on: -(with examples)

- **i.** System software **(3 Marks)**
- **ii.** Application software **(3 Marks)**

f. Construct a logic circuit for the following Boolean expression: -
A.B + C **(4 Marks)**

g. List four benefits of using fiber optic cable. **(2 Marks)**

SECTION B:

QUESTION TWO:

a. Explain the concept of operation of embedded system. **(4 Marks)**

b. What are the benefits of computer to the society? **(4 Marks)**

c. Explain the following: - **(10 Marks)**

- **i.** Telnet
- **ii.** Usenet
- **iii.** Portrait mode
- **iv.** Half-duplex
- **v.** Motherboard

d. Why is the NOR gate termed as universal gate? **(2 marks)**

QUESTION THREE:

a. Draw a well labeled diagram of a computer and explain the functionality of each unit. **(5 Marks)**

b. Construct AND gate using the NAND gate **(2 Marks)**

c. Proof: $\overline{x + y} = \bar{x}.\ \bar{y}$ **(5 Marks)**

d. Explain:- **(8 Marks)**

- **i.** Microcontroller
- **ii.** POST
- **iii.** Cylinders
- **iv.** Operating system

QUESTION FOUR:

a. Differentiate between an input interface and output interface **(4 Marks)**

b. Explain the different number systems **(4 Marks)**

c. Explain the principle of duality **(4 Marks)**

d. Define the following terms: - **(8 Marks)**

i. Utility program
ii. Assembler
iii. Sector
iv. Modem