



AFRICA NAZARENE UNIVERSITY

CENTRE: RONGAI
DEPARTMENT: COMPUTER SCIENCE
UNIT TITLE: FUNDAMENTALS OF COMPUTER SYSTEMS
UNIT CODE: CSC 101
LECTURER: VICTORIA MUKAMI
TRIMESTER: 2ND TRIMESTER 2012/2013
DATE: 9TH APRIL, 2013
TIME: 9.00AM – 12 NOON

Instructions:

1. Answer question **ONE (Compulsory)** and any other **TWO** questions.
2. Write all your answers in the answer booklet provided.
3. Time allowed: Three hours

Question 1 30 Marks - Compulsory

- a) Define the four primary operations of a computer. (4 Marks)
- b) Explain multitasking with reference to an operating system. (4 Marks)
- c) Memory is normally divided into 2 types. List the two types giving one main difference and one type. (4 Marks)
- d) All computers are divided into two main categories. List and define the two categories while giving examples. (4 Marks)
- e) Convert the following numbers to Binary (4 Marks)
 - a. 25 and 42
 - b. Divide the second binary number by the first (4 Marks)
- f) Define the six categories into which computers are generally classified. (6 Marks)

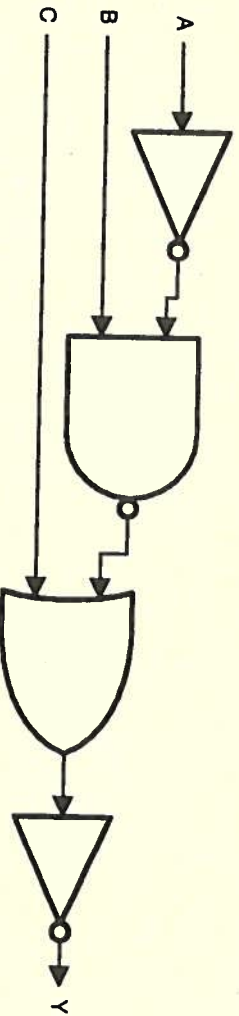
Question 2 (20 Marks)

- a) We use a computer network on a day to day basis to do various tasks that helps in productivity. (2 Marks)
 - a. Define what a computer network is.
 - b. Define a network topology. (2 Marks)
- b) With the use of diagrams, list and explain three of the network topologies (6 Marks)
- c) Physical communication media is normally classified as two types. Describe what physical communication media is and what the two types are, while giving an example of each. (5 Marks)
- d) The CPU is made up of five subcomponents. List the five subcomponents and explain what they are used for. (5 Marks)

Question 3 (20 Marks)

- a) Logic gates are used in the design of logic circuits. List and draw 5 logic gates. (5 Marks)

b) Use the diagram below to answer the questions below.



- i. Find the resulting equation of the diagram above (2 Marks)
 - ii. Using the equation from i) above create the truth table (2 Marks)
 - iii. Using de`morgans law simplify the equation (3 Marks)
 - iv. Draw the resulting circuit for the simplified equation (2 Marks)
- c) The following are some of the characteristics of memory. Distinguish between them. (6 Marks)
- i. Volatile Vs. Non-volatile
 - ii. Destructive Vs. Non-destructive
 - iii. Read-time Vs. Write-time

Question 4 (20 Marks)

- a) The computer industry has grown largely over the years and has been through 5 generations. Describe the 5 generations while giving specific details of each generation. (10 Marks)
- b) List two mobile operating systems for mobile devices and provide an example of a device in which each is installed (2 Marks)
- c) Data transmission normally occurs in one of two methods. (2 Marks)
- i. Explain what happens in Serial Transmission (2 Marks)
 - ii. Discuss the three modes or types used in serial transmission while giving examples. (6 Marks)

