THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY (BSCIT/JAN 2012/J-FT)

BIT 2102: COMPUTER SYSTEMS & ORGANIZATION

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: MAY/JUNE 2012
TIME: 2 HOURS

<u>**Instructions to Candidates:**</u>
You should have the following for this examination
- *Answer Booklet*

This paper consist of **FIVE** questions
Answer any **THREE** questions. Question **ONE** is Compulsory
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

SECTION A (Compulsory - 30 marks)

Question One (30 Marks)

a) Explain the difference between the following terms:
   i) "Basic Input and Output System" and "Analytical Engine"
   ii) "Computer hardware" and "Computer software"
   iii) "Random Access Memory" and "Read Only Memory"
   iv) "Magnetic storage" and Optical storage" (16 marks)

b) For each of the first four computer generations, identify the major electronic component and any other one characteristic. (8 marks)

c) Explain the term "Basic Input Output System (BIOS)" (8 marks)

d) State any two types read only memory (2 marks)

e) Explain the following terms as used in storage media:
   i) Sector
   ii) Track (4 marks)

SECTION B (Answer any TWO questions – 40 Marks)

Question Two (20 marks)

Computer can be classified according to Size, Technology and Purpose. Describe each classification highlight the subcategories   (20 marks)

Question Three (20 marks)

a) Explain the term "Central Processing Unit"   (2 marks)
b) With an aid of diagram, explain the major components of the Central Processing Unit

        (8 marks)
c) Explain how the CPU uses the **FOUR** steps of a machine cycle to process data   (8 marks)
d) Explain the term "Cache Memory"   (2 marks)

Question Four (20 marks)

a) The contents of the memory can be accessed using techniques. Describe the following access modes, stating a suitable example of storage:
    i) Sequential access
    ii) Random access
    iii) Direct access   (9 marks)

b) Convert the following numbers to the new bases indicated:
    i) 19_{10} (Base 2)
    ii) $BABE_{16}$ (Base 10)

c) Evaluate the following:

    i) 1101_2 $1111_2 + 111_2$ (2 marks)
    ii) $11001_2/101_2$ (3 marks)

Question Five (20 marks)

a) Explain the term "Operating systems"   (2 marks)

b) Explain the following terms:
    i) Graphical User Interface
    ii) Command line User Interface
    iii) Utility Programs   (6 marks)

c) Explain any **FOUR** functions of an operating system

d) Explain the following as used in computer storage:
    i) Capacity
    ii) Access time
    iii) Unit of transfer
    iv) Word   (8 marks)