TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS
UNIVERSITY EXAMINATION FOR
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY
BIT 2102 : COMPUTER SYSTEMS AND ORGANISATION
END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE : DECEMBER 2016

<u>**Instructions to Candidates**</u>
You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of **five** questions. Question ONE is Compulsory. Attempt any other TWO questions
Do not write on the question paper.

Question ONE

Question One (30 Marks)

a) Explain the difference between the following terms:

   i)   "Pointing input devices" and "Audio input devices"

   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)"   (2 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)

QUESTION TWO (20 MAKRS)

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

QUESTION THREE (20 MAKRS)

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 MAKRS)

a) The contents of the memory can be accessed using various 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 5)

    ii) BAB_{16} (Base 10)   (6 Marks)

c) Evaluate the following:

    i) $11.01_2 + 111.1_2 + 10.11_2$ (2 Marks)

    ii) $11001_2 / 101_2$ (3 Marks)

QUESTION FIVE (20 MAKRS)

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

b) Explain the following terms:

    i) Graphical User Interface

    ii) Commandline User Interface

    iii) Utility programs   (6 Marks)

c) Explain any four functions of an operating system   (4 Marks)

d) Explain the following as used in computer storage:

    i) Capacity

    ii) Access time

    iii) Unit of transfer

    iv) Word   (8 Marks)