**TECHNICAL UNIVERISTY OF MOMBASA**

# Faculty of Engineering & Technology

**DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY**

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY
(DICT 14S – Y1 S1)

**ECS 2101: COMPUTER SYSTEMS & ORGANIZATION**

END OF SEMESTER EXAMINATION
**SERIES:** DECEMBER 2014
**TIME:** 2 HOURS

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

This paper consists of **FIVE** questions. Attempt question **ONE (Compulsory)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

**Question One (Compulsory)**

a) Explain the meaning of the term ergonomics as used in computing. **(2 marks)**

b) Perform the following conversions:
    **(i)**   $62_{10}$ to Binary
    **(ii)**  $110011_2$ to Octal **(4 marks)**

c) Perform the following arithmetics in Binary:
    **(i)**   $1100_2 \times 1100_2$
    **(ii)**  $110_2 \times 110_2$ **(4 marks)**

d) List and explain the function of any FOUR utility programs. **(8 marks)**

e) Explain the term memory hierarchy as used in computing providing examples in each case.
**(4 marks)**

f) Differentiate between data and information. **(4 marks)**

g) List and explain any TWO types of an operating system. **(4 marks)**

**Question Two**

a) With aid of a diagram explain the function of the various components of a microcomputer.
**(14 marks)**

b) Differentiate between system software and application software. **(4 marks)**

c) Explain the meaning of the term utility programs. **(2 marks)**

**Question Three**

a) Explain the distinguishing features of the first four computer generations. **(8 marks)**

b) Briefly explain the working of the following 1/0 devices as used in a computer system.
    **(i)**    Printer
    **(ii)**   Screen
    **(iii)**  Keyboard
    **(iv)**  Mouse **(8 marks)**

c) Differentiate between a mainframe computer and a microcomputer. **(4 marks)**

**Question Four**

a) Explain the meaning of the following terms:
    **(i)**    BIT
    **(ii)**   Bytes
    **(iii)**  Hardware
    **(iv)**  Software **(8 marks)**

b) Perform the following conversions:

**(i)** $230_{10}$ to binary
**(ii)** $A7_H$ to decimal
**(iii)** $47_{10}$ to octal
**(iv)** $101010_2$ to decimal **(8 marks)**

**c)** Differentiate between BCD and ASCII codes. **(4 marks)**

**Question Five**

**a)** Describe the roles of any FOUR computer personnel found in an ICT organization. **(8 marks)**

**b)** List and describe any FOUR ICT equipment used in an ICT organization. **(8 marks)**

**c)** Explain the meaning and importance of computer safety in relation to health issues. **(4 marks)**