TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:
BACHELOR OF SCIENCE IN CIVIL ENGINEERING
BACHELOR OF SCIENCE IN ELECTRICAL & ELECTRICAL
ENGINEERING
(BSCE/BSEE)

EEE 2174/SMA 2174: INTRODUCTION TO COMPUTER SCIENCE

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2013
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** 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 difference between the following:
   (i)   Operating system and application software   **(4 marks)**
   (ii)   Program and process   **(4 marks)**

b) Describe TWO microprocessor registers   **(2 marks)**

c) Describe the first four generations of computers   **(12 marks)**

d) Explain the difference between the following data processing modes
   (i)   Batch processing and multiprogramming   **(4 marks)**

    (ii)   Real time and time sharing   **(4 marks)**

Question Two

a) Explain the difference between physical and logical topology   **(2 marks)**

b) With the aid of diagrams, describe the following LAN topologies, stating ONE advantage and ONE disadvantage of each: **(10 marks)**
    (i)   Star
    (ii)   Bus

c) Explain the differences between the following with reference to computer networking.
    (i)   Intranet and Extranet   **(4 marks)**
    (ii)   MAN and LAN   **(4 marks)**

Question Three

a)   State TWO reasons to be considered when selecting a binary code   **(2 marks)**

b)   Perform the following computations in two's complement notation.   **(4 marks)**

    $-28_{10} - 42_{10}$

c)   Perform the following computations:
    (i)   728 + 578
    (ii) $3CE_{HEX} + 4AF_{HEX}$ **(3 marks)**

d)   Explain the difference between RAM and ROM   **(4 marks)**

e)   Describe any FOUR categories of ROMS   **(4 marks)**

Question Four

a) Outline FOUR ways in which data security can be compromised in a computer system
                                                                        (4 marks)
b) Suggest the counter measures for (a) above   **(4 marks)**

c) Distinguish between the following terms used in database systems:
    (i)   Primary key and secondary key   **(4 marks)**
    (ii)   Database and DBMS   **(4 marks)**

d) Explain FOUR software considerations in computing   **(4 marks)**

Question Five

a)   Define the following terms:
    (i)   Web page   **(2 marks)**
    (ii)   Home page   **(2 marks)**
    (iii) Teleconferencing   **(2 marks)**

b)   Distinguish between serial and parallel port and state one device that can be connected to each part.   **(3 marks)**

c) Explain the functions of the following keyboard keys **(3 marks)**
    (i)   Special
    (ii) Navigation
    (iii) Function

d) Distinguish between the following:
    (i)   Header and footer **(2 marks)**
    (ii) Footnote and endnote **(2 marks)**

e) Explain FOUR key features of a word processor **(4 marks)**