THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

Faculty of Engineering and Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMIANTION FOR DEGREE IN
BACHELOR OF SCIENCE IN CIVIL ENGINEERING

EIT 4102 : FUNDAMENTALS OF COMPUTING
SMA 2174 : INTRODUCTION TO COMPUTER SCIENCE

END OF SEMESTER EXAMINATIONS

SERIES: AUGUST/SEPTEMBER 2011

TIME: 2 HOURS

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

This paper consist of **FIVE** questions in **TWO** sections **A & B**
Answer question **ONE (COMPULSORY)** and any other **TWO** questions
Maximum marks for each part of a question is as shown
This paper consists of **FOUR** printed pages

<u>**SECTION A**</u> (*Compulsory*)

a) Define the following terms in the context of computer fundamentals:
   i.   Computer system   ii.   Desktop

                                                          iii.   (2 marks)

b) Differentiate between:
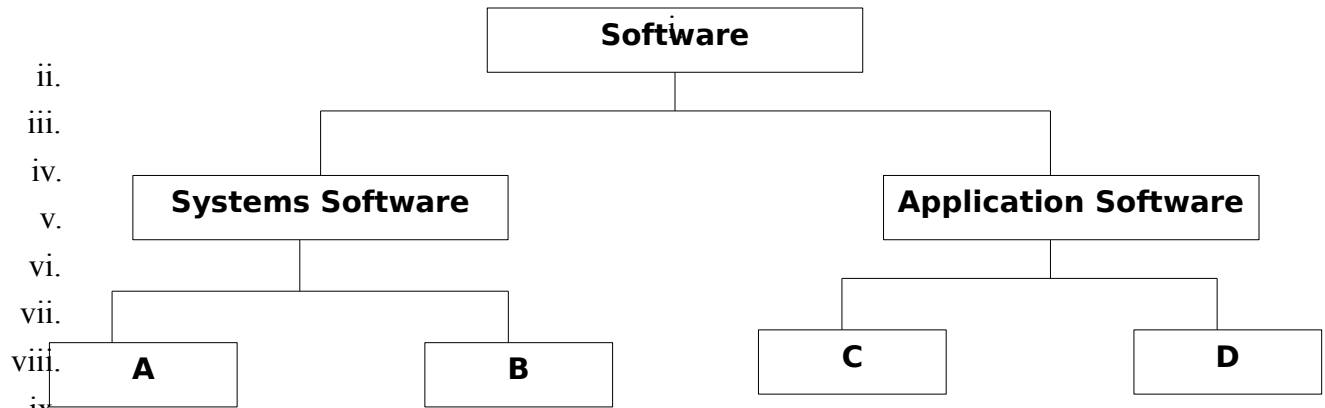   i.   Data and information   ii.   Analog computer and Digital computer

                                                          iii.   (4 marks)

c) The diagram below gives a schematic representation of computer software.

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                              ┌──────────────┐
                              │   Software   │
                              └──────┬───────┘
                     ┌───────────────┴───────────────┐
           ┌─────────┴─────────┐           ┌──────────┴──────────┐
           │ Systems Software  │           │ Application Software│
           └─────────┬─────────┘           └──────────┬──────────┘
              ┌──────┴──────┐                   ┌──────┴──────┐
           ┌──┴──┐       ┌──┴──┐             ┌──┴──┐       ┌──┴──┐
           │  A  │       │  B  │             │  C  │       │  D  │
           └─────┘       └─────┘             └─────┘       └─────┘
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ii.

iii.

iv.

v.

vi.

vii.

viii.

ix.

x.

xi.

xii.   Identify the parts labeled A, B, C & D and give one example of each.

xiii.   (4 marks)

d) The keyboard is used as the basic input device for most computers. Identify and describe the use of the four major keys that are commonly found on a computer keyboard

i.   (8 marks)

e) Your boss has asked you to assist with the acquisition of office printer to support internal communication or correspondence. Given a laser printer and dot matrix printer, which of the two printers will you recommend? Justify your choice.

i.   (4 marks)

f) Write the following acronyms in full and give their functions in the computer system:
   i.   MOS   ii.   BIOS

iii.   (4 marks)

g) List four factors to consider when selecting hardware.

i.   (2 marks)

ii.   SECTION B

iii.

iv.   Question 2

v.

a) Differentiate between a bit and a byte.

vi.   (2 marks)

b) Give two reasons why the binary number system is utilized for modern electronic digital computers.

vii.   (2 marks)

c) Most operating systems include several programs that can be used to manage, protect data and improve the performance of the computer. Briefly discuss any four management/maintenance programs (processes) that windows OS provide to keep the computer in top working condition.

viii.   (8 marks)

d) State the importance of the following tools:
   ix.   Control panel
   x.   Windows firewall
   xi.   Disk manager

xii.   Icons

e) Why is the concept of Boolean algebra important to the digital computers and other digital systems? Give at least two reasons.

xiv. (4 marks)

xv. Question 3

xvi.

a) Name the major technology that distinguishes the following computer generations (i.e. 1st to 5th).

xvii. (5 marks)

b) Briefly explain the role played by the following Computer system hardware components:

i.	Input	iv.	Arithmetic Logic Unit (ALU)
ii.	Output	v.	Cache
iii.	Control Unit (CU)		

vi. (5 marks)

c) Briefly explain the following categories of programs with an example of each:

i.	Word Processor	iv.	Presentation package
ii.	Spreadsheet	v.	CAD package
iii.	Database System		

vi. (10 marks)

vii. Question 4

a) Explain the following mouse operations:

i.	Click	iv.	Drag
ii.	Double click	v.	Drop
iii.	Right click		

i. (10 marks)

b) State four major facilities that are provided by a Word Processor.

ii. (4 marks)

c) Perform the following conversions:
   i. Convert binary 00011011_2 to decimal
   ii. Convert decimal 278_{10} to binary
   iii. Convert $19B116_{16}$ to binary (6 marks)

iv. Question 5

v.

a) Using a well-labeled diagram, illustrate the functional components of a Computer System.

vi.   (12 marks)

b) Discuss any four areas/sectors where computers are applied, stating their major functional importance.

vii. (8marks)

viii.

ix.

x.