TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR BACHELOR OF SCIENCE IN
ELECTRICAL & ELECTRICAL ENGINEERING
(BSEE)

SMA 2174: INTRODUCTION TO COMPUTER SCIENCE

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: JULY 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 **TWO** printed pages

Question One (Compulsory)

a) Differentiate the following terms in the context of computer fundamentals:
    (i) Computer system and information system
    (ii) Data and information
    (iii) Analog computer and digital computer   **(6 marks)**

b) The diagram below gives a schematic representation of a computer system.

Identify the parts labeled A, B, C and D; and state their role in a computer system.   **(4 marks)**

c) The keyboard is used as a basic input device for most computers. Identify and describe the use of the **FOUR** major keys that are commonly found on a computer keyboard.   **(8 marks)**

---

d) Your boss has asked you to assist with acquisition of office printer to support printing engineering designs you have been working on. Given a laser printer and a Dot-Matrix printer, which of the two printers will you recommend? Justify your choice. **(4 marks)**

e) Write the following acronyms in full and give their functions in the computer system:
   (i) RAM
   (ii) ROM **(4 marks)**

f) List **FOUR** factors to consider when selecting computer hardware for engineering works.
(4 marks)

Question Two

a) Differentiate between a bit and a byte? **(2 marks)**

b) Give **TWO** reasons why the binary number system is utilized for modern electronic digital computers. **(2 marks)**

c) Most operating systems include several program that can be used to arrange, protect data and improve the performance of the computer. Briefly discuss any **FOUR** computer maintenance programs that windows OS provide to help keep the computer in top working condition.
(4 marks)

d) State **TWO** major roles of CAD/CAM computer-aided tools in the field of engineering and architecture. **(4 marks)**

e) (i) Explain why the processor clock speed of the CPU and the size of RAM critically affect the software that can be used on the computer system. **(4 marks)**

(ii) Briefly explain the meaning and significance of antivirus software (AVS) **(4 marks)**

Question Three

a) Briefly describe the meaning and five examples of common applications of the following direct input technologies.
   (i) OMR
   (ii) OCR (6 marks)

b) Define the following terms on the context of computer fundamentals:
   (i) Computer generation
   (ii) Computer organization **(4 marks)**

c) Computer development is divided into **FIVE** main generations. Briefly describe the key technological development associated with each generation, merits and demerits. **(10 marks)**

Question Four

a) Explain the term data processing **(2 marks)**

b) State the elements of data processing cycle **(6 marks)**

c) Explain the data processing modes **(12 marks)**

Question Five

Explain the following types of computers:

(i)   Micro-computers
(ii)   Mini-computers
(iii)   Mainframe computers
(iv)   Super computers
(v)   Handheld computers   **(20 marks)**