

University Examinations 2011
MOMBASA POLYTECHNIC UNIVERSITY COLLEGE
EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN CIVIL ENGINEERING
& BACHELOR OF SCIENCE IN BUILDING AND CONSTRUCTION ENGINEERING (Year 1)

(BUILDING & CIVIL ENGINEERING DEPARTMENT)

SMA 2174: Introduction to Computer Science / BIENG 2102: Fundamentals of Computing

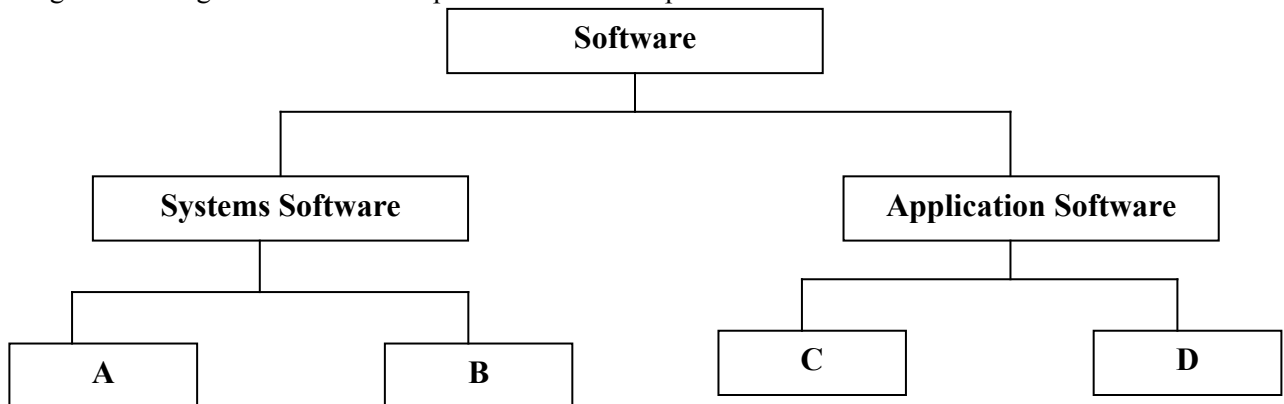
DATE: August 2011

TIME: 2 HOURS

INSTRUCTIONS: Answer Question **one** and any other **two** questions.

Question 1:

- a) Define the following terms in the context of computer fundamentals:
- i. Computer system
 - ii. Desktop
- (2 marks)
- b) Differentiate between:
- i. Data and information
 - ii. Analog computer and Digital computer
- (4 marks)
- c) The diagram below gives a schematic representation of computer software.



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

(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.
- (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.
- (4 marks)
- f) Write the following acronyms in full and give their functions in the computer system:
- i. CMOS
 - ii. BIOS
- (4 marks)
- g) List four factors to consider when selecting hardware.
- (2 marks)

Question 2:

- 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 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. (8 marks)
- d) State the importance of the following tools: (4 marks)
- i. Control panel
 - ii. Windows firewall
 - iii. Disk manager
 - iv. Icons
- e) Why is the concept of Boolean algebra important to the digital computers and other digital systems? Give at least two reasons. (4 marks)

Question 3:

- a) Name the major technologies that distinguish the computer generations (i.e. 1st to 5th). (5 marks)
- b) Briefly explain the role played by the following computer system hardware components: (5 marks)
- i. Input
 - ii. Output
 - iii. Control Unit (CU)
 - iv. Arithmetic Logic Unit (ALU)
 - v. Cache
- c) Briefly explain the following categories of programs with an example of each: (10 marks)
- i. Word Processor
 - ii. Spreadsheet
 - iii. Database System
 - iv. Presentation package
 - v. CAD package

Question 4:

- a) Explain the following mouse operations: (10 marks)
- i. Click
 - ii. Double click
 - iii. Right click
 - iv. Drag
 - v. Drop
- b) State four major facilities that are provided by a Word Processor. (4 marks)
- c) Perform the following conversions: (6 marks)
- i. Convert binary 00011011_2 to decimal
 - ii. Convert decimal 278_{10} to binary
 - iii. Convert $19B116_{16}$ to binary

Question 5:

- a) Using a well-labeled diagram, illustrate the functional components of a Computer System. (12 marks)
- b) Discuss any four areas/sectors where computers are applied, stating their major functional importance. (8marks)