



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

(A Centre of Excellence)

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

**UNIVERSITY EXAMINATION FOR DEGREE IN BACHELOR OF TECHNOLOGY
IN ANALYTICAL CHEMISTRY (BTAC 11M & 12M)**

ACH 4312: COMPUTERS FOR CHEMISTRY

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: OCTOBER 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consist of **FIVE** questions

Answer 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

SECTION A (COMPULSORY)

Question One (30 marks)

- a) Define the following terms as used in the computer world giving examples where possible.
- i) Software **(2 marks)**
 - ii) BYTE **(2 marks)**
- b) The organization where you work is about to computerize its operations and you have been called in as an ICT Consultant to advise them on the best way forward.

Required:

Produce a write up covering the following areas:

- i) Discuss the various input and output devices that should be bought giving key reasons as to why and where they will be used. **(4 marks)**
- ii) Highlight and discuss key characteristics of computers that you will use to convince the organization to computerize the operations rather than keep using the manual systems. **(4 marks)**
- c) Discuss the **FOUR** types of computers giving their key characteristics and where possible give practical example. **(8 marks)**
- d) Convert the following base 10 numbers into base 2 and the base 2 into base 10. You're your workings. **(4 marks)**
 - i) 253
 - ii) 158
 - iii) 10101010
 - iv) 100111
- e) Discuss the **THREE** key repeating operations that the CU does during the computer processing of information. **(6 marks)**

SECTION B (Answer Any Two Questions)

Question Two (20 marks)

- a) Explain the following data processing methods. **(9 marks)**
 - i) Manual
 - ii) Mechanical
 - iii) Electronic
- b) Discuss the following terms used in document readers and give their respective features. **(9 marks)**
 - i) Optical Character Reader (OCR)
 - ii) Optical Mark Reader (OMR)
 - iii) Magnetic Ink Character Reader (MICR)
- c) Apart from OCR, OMR and MICR, state any other FOUR computer input devices. **(2 marks)**

Question Three (20 marks)

- a) Tasks that are performed repeatedly can be automated. State and explain the facility in MS Word that does the automation. **(3 marks)**
- b) Explain the following terms as used in Ms. Word program. **(5 marks)**
 - i) Title case
 - ii) Toggle case
 - iii) Landscape
 - iv) Portrait
 - v) Autocorrect
- c) Explain the **THREE** ways of adjusting the width of a column on a worksheet. **(3 marks)**
- d) Explain, while giving examples the following types of entries that can be entered in an Ms Excel Worksheet cell.
 - i) Labels
 - ii) Values

- e) Give the functions that will be used to do the following tasks as used in Ms Excel. **(3 marks)**
- i) Compute the sum of numbers from cell A4 to cell A10
 - ii) Round off the values in cell D20 to two decimal places
 - iii) Compute the mean value of values from B2 to B50

Question Four (20 marks)

- a) Explain the following access time parameters as used in Directed Access Storage Medium **(6 marks)**
- i) Seek time
 - ii) Rotational delay
 - iii) Data transfer time
- b) What is Computer Software? **(2 marks)**
- c) Define the following terms: **(8 marks)**
- i) System software
 - ii) Utility program
 - iii) Language translators
 - iv) Dump Utility
- d) With the aid of a diagram, explain the relationship between the user, application software, system software and computer hardware. **(4 marks)**

Question Five (15 marks)

- a) Briefly discuss the following computer generations. **(9 marks)**
- i) Second Generation Computers
 - ii) Third Generation Computers
 - iii) Fourth Generation Computers
- b) Define the term “processing” as used in computer system. **(2 marks)**
- c) Briefly discuss the following components found in the CPU. **(9 marks)**
- i) Level 1 Cache Memory
 - ii) Arithmetic and Logic Unit
 - iii) Control Unit