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

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