



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Applied & Health Sciences

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR BACHELOR OF TECHNOLOGY IN ANALYTICAL
CHEMISTRY (BTech AC 12J YR I SEM I)

ECS 4101: INFORMATION TECHNOLOGY I

END OF SEMESTER EXAMINATION

SERIES: APRIL 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions in **TWO** sections **A & B**

Answer question **ONE (COMPULSORY)** plus 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 (20 Marks)

- a) (i) Explain the following terms as applied on the Internet and give **ONE** example where appropriate
- (i) Home page
 - (ii) Web browser
 - (iii) Search Engine (6 marks)
- (ii) Change the following decimal IP address to binary format:- (3 marks)
201.61.186.227
- b) (i) Describe an application simulation (2 marks)
- (ii) Differentiate between in-house and packaged software (2 marks)
- (iii) Outline **THREE** reasons for preferring in-house software to packaged software (3 marks)
- c) Explain the following as used in databases (1 mark)
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- (i) Relationship
 - (ii) Primary key (2 marks)
- d) (i) What is a DBMS? (1 mark)
- (ii) Give **ONE** example of a DBMS (1 mark)

SECTION B (Attempt any TWO sections)

Question Two (20 marks)

- a) (i) Describe **TWO** major types of software giving an example of each (4 marks)
- (ii) An organization which has been using a manual based system in handling its business transactions has decided to introduce a computerized system so as to respond to the market force. State **FOUR** advantages that are likely to be realized as a result of using a computerized Transaction Processing System (4 marks)
- b) Describe a distributed system and outline its importance in industry/business organizations. (8 marks)
- c) (i) Explain the use of Macro in application software
- (ii) Outline **TWO** differences between Artificial Intelligence and Human Intelligence (4 marks)

Question Three (20 marks)

- a) Describe the following areas of artificial intelligence giving example of each.
- (i) Robotics
 - (ii) Expert systems (4 marks)
- b) Fuzzy logic, a branch of artificial intelligence, offers business improvements over the simplistic binary choices offered by many computer systems.
- (i) Describe fuzzy logic (2 marks)
 - (ii) State **TWO** applications of fuzzy logic in business (2 marks)
- c) (i) Explain **THREE** benefits realized with the introduction of an operating system in the application of computers (6 marks)
- (ii) Explain **THREE** environmental problems that may threaten the safety of computers in an organization (6 marks)

Question Four (20 marks)

- a) Explain the following as used in spreadsheets
- (i) Worksheet
 - (ii) Cell referencing (4 marks)
- b) The table below shows a list of students and the marks they obtained in a given examination

	A	B	C	D	E	F	G
1	NAME	MATHS	PHYSICS	ENGLISH	TOTAL	AVERAGE	RESULTS
2	PETER	50	58	40			
3	JOHN	75	89	56			
4	JANE	46	69	25			

5	MARY	59	78	56			
6	PAUL	88	62	71			
7	HIGHEST TOTAL MARK						
8	LOWEST TOTAL MARK						

Write a formula using cell names to compute the following expressions stating the most appropriate cell where the formula is placed.

- (i) Total marks for each student (2 marks)
- (ii) Average mark for each student (2 marks)
- (iii) Highest Total Mark (2 marks)
- (iv) Lowest Total Mark (2 marks)
- (v) If the pass mark is an average of 60 marks and above, write a formula to indicate the RESULT as “PASS” or “FAIL” using a logical function for each student (2 marks)

c) The Head Teacher wanted to present the marks in (b) above to the Chairman of the School’s Board of Governors so that he can reward the best overall student.

- (i) Suggest **ONE** reason why the teacher would prefer to use graphical based presentation as opposed to text based presentation (2 marks)
- (ii) Describe **TWO** types of graphs which the Head Teacher can use during the presentation (4 marks)

Question Five (20 marks)

- a) Define real-time computing giving instances of its use and importance in day-to-day life. (8 marks)
- b) The principle of Wema Technical Institute in Mombasa would like to install the Internet in the Institute’s Voi branch to enhance communication between the two colleges. Using this information:
 - (i) State **FOUR** requirements for the success of the internet installation
 - (ii) With the aid of diagram, describe the connection of the two colleges using the internet (8 marks)
- c) The Kenya Computer Society is calling for submission of papers on “The Impact of Computer on Society” to students of middle level colleges. Explain any **FOUR** issues that should be included in the paper. (4 marks)