



TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:
BACHELOR OF TECHNOLOGY IN ANALYTICAL CHEMISTRY

ACH 4312: COMPUTER FOR CHEMISTRY

END OF SEMESTER EXAMINATION

SERIES: AUGUST 2013

TIME: 2 HOURS

Instructions to Candidates:

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) Define the following terms as used in data communication. **(8 marks)**
- (i) Data
 - (ii) Information
 - (iii) Hardware
 - (iv) Transmission line
- b) Briefly describe the following under data transmission networks. **(4 marks)**
- (i) Packet switching
 - (ii) Circuit switching
- c) State **FOUR** types of services you may find and a networking system and explain their functions. **(8 marks)**
- d) (i) List **FOUR** major threats to security of data on network **(4 marks)**
- (ii) Explain **THREE** ways of how the threats in (i) above can be avoided or reduced. **(6 marks)**

Question Two

- a) A switch, line a hub is the central connecting point in a star topology network. Explain and differentiate these two devices. (4 marks)
- b) Explain **THREE** factors one would consider in deciding whether to implement a peer-to-peer network or a client server network (6 marks)
- c) Explain the following types of network topologies:
(i) Bus
(ii) Star
(iii) Ring
(iv) Tree (8 marks)
- d) Distinguish between broadband and baseband signal transmission. (2 marks)

Question Three

- a) Explain any **FOUR** uses of a computer networks in organization. (8 marks)
- b) Describe the following transmission median as used in data communication and networking:
(i) Coaxial cable (6 marks)
(ii) Fibre optic
(iii) Satellite
- c) List **FOUR** components of a computer network (4 marks)
- d) Describe the term network topology (2 marks)

Question Four

- a) Define the following terms used in programming. (8 marks)
(i) Program
(ii) Flow charts
(iii) Structured programming
(iv) Programming languages
- b) State and explain any **THREE** classes of programming languages (6 marks)
- c) Differentiate between the following terms as used in structural programming (6 marks)
(i) Low level and high level programming
(ii) \$ and \$\$
(iii) = and ==

Question Five

- a) Explain the following concepts in programming languages. (6 marks)
(i) Semantics
(ii) Syntax
(iii) Algorithm
- b) State and explain any **THREE** classes of programming languages (6 marks)

c) Describe the **FOUR** basic data types as used in the programming language. **(8 marks)**