TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MARINE ENGINEERING

EMR 2113: ICT II

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2HOURS

DATE: 18Apr 2016

<u>**Instructions to Candidates**</u>
You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of **FIVE** questions. Attemptquestion ONE (Compulsory) and any other TWO questions.
Do not write on the question paper.

Question ONE

a) Select the most suitable data type from the list to represent:
   i.   the number of children in a family
   ii. a line of a company's address
   iii. the gender of a person
   iv. somebody's birthday

   (2marks)

b) Point out which best describes the type of processing used in the following applications.

   i.   A burglar alarm system.
   ii. Producing gas bills.
   iii. Cooking with an automatic cooker.
   iv. Scanning OMR sheets.

   (2marks)

c) A large national supermarket company uses a database to store customers' records.
   Define **each** of the following functions of the database software and give an appropriate example of how **each** can be used *in this context*:
   i.   import/export;   (2marks)

ii.   Query;   (2marks)

iii.   Report.   (2marks)

d) A school teacher keeps records of her students' test scores on a computer. At the end of each term she prints out letters to parents showing these results. She also uses the computer to predict the students' future test scores. Identify three items of software which she could use.

(3marks)

e) Describe the main advantages to a school or college of using ICT systems to register students.

(3marks)

f) Describe two health issues caused by the prolonged use of computers. For each health issue give a method of prevention.   (4marks)

Question TWO

Most organizations now have ICT security policies.

a) Discuss in detail the potential threats to data and the possible consequences of accidental or deliberate destruction of data. Illustrate your answer with distinctly different examples in **each** case.

(6marks)

b) Discuss **three** methods which could be used to prevent the deliberate destruction or misuse of data.

(9marks)

c) Complete each sentence below using one item from the list.

A bar code reader	A dot matrix printer	A graph plotter
A graphics tablet	A microphone	A multimedia projector
A pressure sensor	A speaker	A touch pad
A web cam		

i.   Is used in CAD applications to produce very large printouts.   (1mark)

ii.   Is used to display data from a computer onto a very large screen.   (1mark)

iii. Sends data to a microprocessor in a washing machine.   (1mark)

iv. Is used to control the pointer on a laptop screen.   (1mark)

v.   Is used to input sounds for use in presentation software.   (1mark)

Question THREE

Waiguru owns a chain of car repair garages. She keeps records of all her customers. She has employed a systems analyst to recommend a new computer system for her business. The first task the analyst will undertake is to analyze the existing system.

a) Give four methods of analyzing the existing system. (4marks)

b) Details of each customer need to be entered into the computer. Give reasons why this data will need to be verified. (2mark)

The prolonged use of computers can lead to health and safety problems.

c) Identify two health problems that may be caused by prolonged use of computers and explain how each could be prevented (4marks)

d) Computers are used to manage data in libraries. Name the different methods used to input data about books and borrowers and discuss the advantages and disadvantages of these.

(6marks)

e) A company wants all its offices to be able to communicate using ICT systems. They are considering using fax, e-mail and bulletin boards. Discuss the advantages and disadvantages of these methods. (4marks)

Question FOUR

The manager of a company wants to improve the security of the computer network. She has decided to use authentication techniques so that employees can identify themselves to the system.

a) Name four authentication techniques and describe how each technique would help keep the data more secure. (4marks)

b) Schools and colleges now use ICT systems for student record keeping. Other than name, address, post code, and telephone numbers, give **four** distinct fields and describe why they are needed.

(10marks)

c) Explain why the following are used with PCs.
   i.   Pen drives (2marks)
   ii.   Blu-ray (2marks)
   iii. Fixed hard disc drives (2marks)

Question FIVE

A systems analyst has been asked by a school librarian to update the computer system she uses to keep records about her books.
The systems analyst must first of all collect information about the existing system.

a) Describe three methods which could be used to collect this information. (6marks)

b) Name three methods which would be used in a library to input data about books or borrowers. (3marks)

c) Describe what real time processing is, using a microprocessor-controlled central heating system as an example. (6marks)

(a) Car mechanics use expert systems to diagnose car faults. Describe how an expert system diagnoses these faults. (5marks)