TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:
BACHELOR OF MECHANICAL ENGINEERING (BSME 13)

SMA 2174: INTRODUCTION TO COMPUTERS

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: MARCH 2014
TIME: 2 HOURS

<u>**Instructions to Candidates:**</u>
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 **THREE** printed pages

Question One (Compulsory)

a) A student desires to buy a Laptop that he can use for his research work. Explain how you would advise on the system performance issues.   **(6 marks)**

b) A firm offers a service to potential customers whereby the firm's representative calls at the customer's house and produces an image of what the proposed building improvements will look like. Explain how this service is carried out. Include a reference to the hardware and software required.   **(4 marks)**

c) Explain the following concepts   **(6 marks)**
   (i)   Registers
   (ii) System Bus
   (iii) Buffer

d) Spreadsheet applications have a wide variety of functions which can be used. Write down the name of the spreadsheet function that you will use for each of the examples below;

    (i) Add up a series of numbers in a range **(2 marks)**

    (ii) Determine how many cells in a range have a value of 100 or more **(2 marks)**

    (iii) Find the number of cells in a range that contain numbers **(2 marks)**

e) (i) Differentiate between a database and a database management system **(4 marks)**

    (ii) Describe the general organization of a relational database **(4 marks)**

Question Two

Read the following data and answer the following questions, showing a traffic signal controller.

Time Sequence in Seconds	Don't Walk	Walk		Read		Yellow		Green	HEX CODE
0	D7	D6	D5	D4	D3	D2	D1	D0	
(15)									
15	0	1		0		0		1	=41H
(5)									
20	1	0		0		1		0	=84 H
(20)									
40	1	1		1		0		0	=90 H

    NOTE: The given light and walk sigh can be turned on by sending data byte 41H to the output port. The 15 second delay can be provided by using 1 – second subroutine with a count of 1510.

a) Draw a flow chart diagram to represent the above table. **(5 marks)**

b) Discuss any TWO problem analysis that a IT programmer may experience when programming their code. **(4 marks)**

c) State the TWO stages of language translators. **(4 marks)**

d) State the TWO types of language translation. **(4 marks)**

e) Write any THREE characteristics of a computer program. **(3 marks)**

Question Three

a) Explain the 5 major physical components of computer system. **(10 marks)**

b) Differentiate between:

    (i) Trackball and mouse

    (ii) Random access and sequential access

    (iii) Register and address

    (iv) Word length and bytes

    (v) Signed integers and unsigned integers **(5 marks)**

c) What is CPU? Explain FOUR o its function. **(5 marks)**

Question Four

a) Explain the differences between internal and external DO's commands giving an example of each.
(6 marks)
b) Explain all the generations of computer in details. **(12 marks)**

Question Five

a) What is internet? Describe any FIVE shortcomings of usages of internal that has affected the social. **(5 marks)**
b) Explain the various types of network topologies. **(5 marks)**

c) Explain the difference between an assembly language and a high level languages, stating TWO advantages of each. **(10 marks)**