



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)

SMA 492: COMMERCIAL PROGRAMMING

DATE: 22/10/2020

TIME: 2.00-4.00 PM

INSTRUCTIONS

Answer question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

- a) Define the term Commercial programming. (2 marks)
- b) The following are common features of good commercial software:
- i. functionality
 - ii. usability
 - iii. portability
- Explain the importance of each of the above features. (6 marks)
- c) The process of developing commercial software follows certain steps. With the use of a well illustrative diagram, outline the main steps of this process. (7 marks)
- d) One of the programming languages widely used for the development of commercial software is Visual basic(VB). Explain four events which can be applied on a VB object (4 marks)
- e) i Describe the main distinctive features that event-driven programming languages have compared to other types programming languages. (3 marks)

- ii Outline **TWO** examples of event driven programming languages other than VB.
(2 marks)
- (f) Write a program with a user interface which consists of THREE textboxes and a command button such that if two values are entered into the two textboxes, the value of the first number raised to the power of the second number is displayed on the third text box, at the click of a button.
(6 marks)

QUESTION TWO (20 MARKS)

- a)
 - i Outline **FOUR** attributes of a good user interface. (4 marks)
 - ii Differentiate between a Single Document Interface (SDI) and a Multiple Document Interface (MDI). (2 marks)
 - iii Provide an example of an application that demonstrates each of the above interfaces. (2 marks)
- b) An application is required to allow a lecturer to input student marks for **cat1**, **cat2** and the **final** exam mark through text boxes. When the lecturer clicks a command button named **result**, the application displays the average cat mark and the total percentage mark on a message box. **Cats** are marked out of 30% and the **final** exam out of 70%.

Required:

- i. Sketch a suitable Graphical User Interface (GUI) for the above requirement, and set the properties of all the controls appropriately. (4 marks)
- ii. Write the program to implement the application. (8 marks)

QUESTION THREE (20 MARKS)

- a)
 - i Differentiate an input box from a message box method. (2 marks)
 - ii Write a single statement for each one of the above methods to show how they are incorporated in a VB program. (4 marks)
- b)
 - i With the use of a suitable program structure, give and explain the general syntax of the **If...Then...Else** control structure. (4 marks)
 - ii Draw a flow chart diagram to illustrate the **Do...while** control structure. (4 marks)

- c) Using input boxes and a message box, write a program to compare two numbers then display the smallest of the two. (6 marks)

QUESTION FOUR (20 MARKS)

A commercial program is required to compute commissions that need to be paid to different sales representatives based on the following sales data and commissions earned thereof:

<u>Sales amount(Kshs)</u>	<u>Commission(as a % of sales amount)</u>
1,000 – 10,000	5.0
10,001 – 50,000	7.5
50,001 – 75,000	10.0
75,001 – 100,000	12.5
Above 100,000	15.0

- a) Draw a flow chart diagram to represent the program. (7 marks)
- b) Write the program. (10 marks)
- c) Explain THREE advantages of error handling in commercial systems (3 marks)

QUESTION FIVE (20 MARKS)

- a) Describe the steps followed while connecting a table called **PRODUCT** from a database to the VB development environment using the data environment facility. Clearly show all the relevant property settings. (6 marks)
- b) Write down the code segments that will move to the **next** record, as well as to the **previous** record. (4 marks)
- c) Assuming that the **PRODUCT** table has the following fields: prod#, Name, manufacturer and price, write SQL statements to achieve the following:
- i. produces a list of all fields in descending order of prices (2 marks)
 - ii. changes the price of product number **p004** to **5,000**. (2 marks)
 - iii. adds a new record to the **PRODUCT** table. (2 marks)
 - iv. deletes price records for all products manufactured by unilever. (2 marks)
 - v. adds another field named date-of-manufacture to the table. (2 marks)