kasneb

DICT LEVEL II

PROGRAMMING CONCEPTS

TUESDAY: 18 May 2021. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question.

ALL programs written should be in Visual Basic programming language.

QUESTION ONE

(a) Highlight four variable naming rules in Visual Basic. (4 marks)

(b) Fill in the table below with the meaning of each of the logical operators used in Visual Basic programming:

Operator	Meaning
And	
Or	
Xor	
Not	

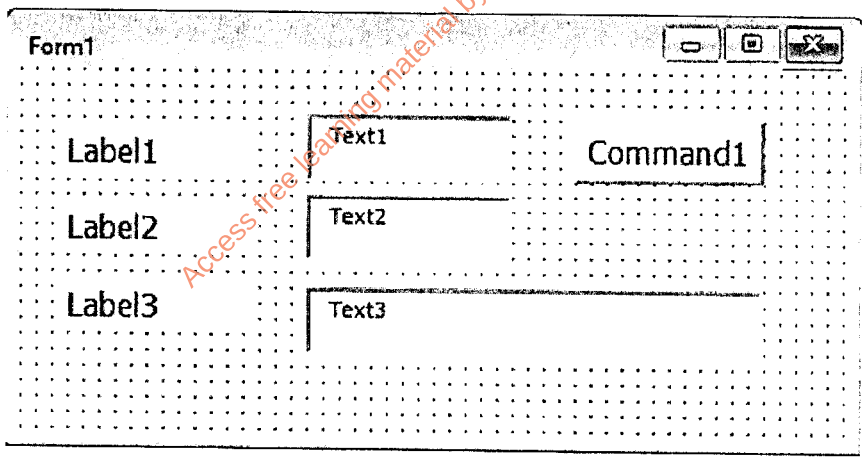
(4 marks)

(c) Outline four advantages of flowcharts to analysts of problems with multiple solutions. (4 marks)

(d) You have designed a form with a command button named "Close".

Write a code which will terminate the program and return back to the form interface when the button is clicked. (3 marks)

(e) Below is a simple interface in the process of design:



Required:
Enumerate the steps of creating the interface on an open blank form (Form1). (5 marks)

(Total: 20 marks)

QUESTION TWO

(a) Describe the following types of programming languages:

(i) Logic Programming Languages. (2 marks)

(ii) Functional Programming Languages. (2 marks)

(b) (i) Write a pseudo-code that uses a While loop to add 5 integer numbers. (4 marks)

(ii) Draw a flowchart to represent the pseudo code in (b) (i) above. (6 marks)

(iii) Transform your pseudo code in (b) (i) above into a Visual Basic code.

Use an InputBox to prompt for input when a button is clicked and use a MsgBox to display final result.
(6 marks)
(Total: 20 marks)

QUESTION THREE

(a) Explain the following terms as used in computer programming:

(i) Object code (2 marks)

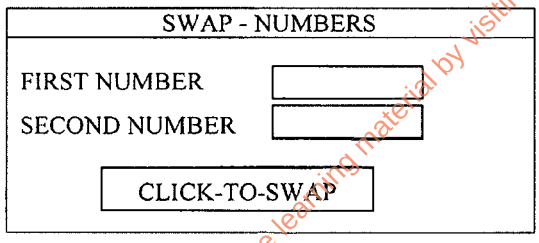
(ii) .EXE (2 marks)

(iii) Source code (2 marks)

(b) (i) Explain the term Dynamic Link Library (DLL). (2 marks)

(ii) Citing two reasons, defend the use of DLLs by software developers. (4 marks)

(c) The user interface below is used for swapping two numbers:



Required:
Write a Visual Basic program that swaps first number and second number when "click-to-swap" button is clicked.
(8 marks)
(Total: 20 marks)

QUESTION FOUR

(a) Highlight three advantages of machine programming languages. (3 marks)

(b) Complete the table below of programming paradigms and examples of associated programming languages:

	Programming paradigm	**Programming language**
(i)	Structured	
(ii)		Visual COBOL
(iii)	Object oriented	
(iv)	Procedural	
(v)		JavaScript

(5 marks)

(c) Explain the importance of each of the following when debugging Visual Basic programs:

(i) Breakpoint. (2 marks)

(ii) Immediate window. (2 marks)

(d) Masomo Computer College offers five examinations to diploma students. The papers are identified by the following codes:

- ICT Basics	ICT 101
- Computer Applications	ICT 102
- Programming Skills	ICT 103
- Computer Maths	ICT 104
- Computer Support	ICT 105

Required:

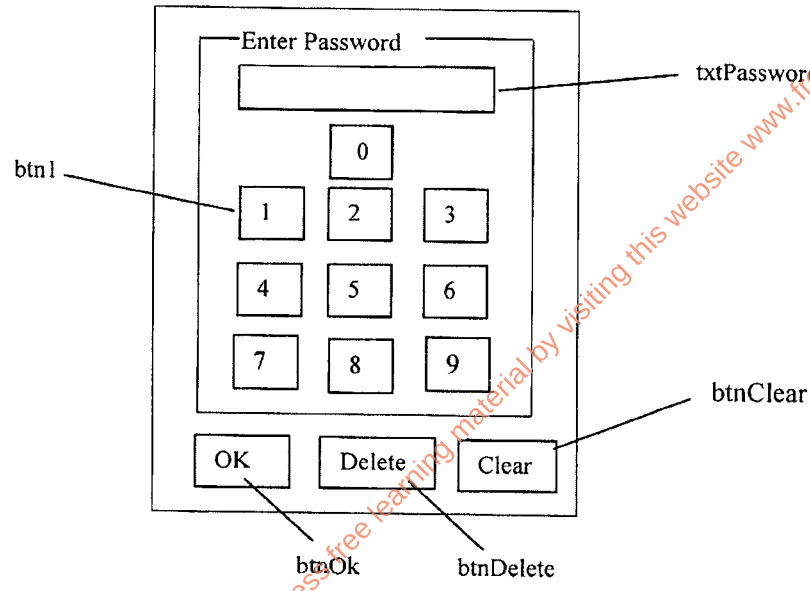
(i) A graphical user interface (GUI) to input marks for each paper and a textbox control labelled "Total" to output the total marks for each candidate. (4 marks)

(ii) A Visual Basic procedure to compute the total marks on the mouse click of a command button named "Calculate". (4 marks)

(Total: 20 marks)

QUESTION FIVE

Below is a simple interface for inputting passwords in a door security system:



Required:

(a) Write Visual Basic code that will:

(i) Append number 1 to txtpassword when btn1 is clicked. (2 marks)

(ii) Remove all numbers in txtpassword when btnclear is clicked. (2 marks)

(iii) Deactivate btnDelete when txtpassword is blank. (2 marks)

(iv) Delete the last character when btnDelete is clicked. (3 marks)

(b) Suppose that btnDelete is active and there is no text in txtpassword.

Explain the type of programming error a user will run into when the button is clicked. (3 marks)

(c) Each user has a unique password in the system.

Assume an anonymous user's password is "5555".

Write Visual Basic code that will validate the above when btnOk is clicked. If the passwords match, the system should print "Password accepted", otherwise it should print "Wrong password". (4 marks)

(d) Sketch a flowchart to demonstrate how to validate the password in this system. (4 marks)

(Total: 20 marks)

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