

KASNEB

DICT LEVEL II

PROGRAMMING CONCEPTS

PILOT PAPER

September 2015.

Time Allowed: 3 hours.

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

QUESTION ONE

- (a) Define the following terminologies as used in programming:
- (i) Programmer. (2 marks)
 - (ii) Program. (2 marks)
 - (iii) Compiler. (2 marks)
- (b) Distinguish between the following terminologies:
- (i) "Algorithm" and "pseudocode". (4 marks)
 - (ii) "Machine code" and "source code". (4 marks)
- (c) Using a diagram, explain the three steps in problem solving. (6 marks)
- (Total: 20 marks)**

QUESTION TWO

- (a) Outline six major steps in program development cycle. (6 marks)
- (b) Explain the divide-and-conquer method as used in problem solving. (2 marks)
- (c) Using flowcharts, describe the program control structures. (12 marks)
- (Total: 20 marks)**

QUESTION THREE

- (a) Explain the results that would be displayed after the execution of the following code:
- (i)

```
Dim a as double
Dim b as double, Dim c as double
a = 3
b = 1
c = a + (b * a)
a = b
c = a + c
Lstans.items.Add (a + b + c)
```

 (2 marks)
 - (ii)

```
Dim a, b, c as String
a = "THE WHOLE"
b = "PART"
c = a.substring (CInt(math.sqrt(4)), b.Length)
txtans.Text = Cstr (c)
```

 (2 marks)
 - (iii)

```
Lstnumbers.items.Add (5)
Lstnumbers.items.Add (2 * 3)
Lstnumbers.items.Add ((2 ^ 3) - 1)
```

 (2 marks)

- (b) Write a Visual Basic code to do the following in a textbox named txtdisplay.
- (i) Display the text colour as red. (2 marks)
 - (ii) Hide the textbox. (2 marks)
 - (iii) Display the text “programming concepts” in the textbox at runtime. (2 marks)
- (c) (i) Write a program that would display the product of two variable constants named a = 5 and b = 6 in a listbox called Lstproduct. (4 marks)
- (ii) Write a program that would display the cube of numbers between 15 to 20 using the for loop in a listbox called Listquares. (4 marks)
- (Total: 20 marks)**

QUESTION FOUR

- (a) (i) Outline two top-down design criteria. (2 marks)
- (ii) State two similarities between functions and procedures. (2 marks)
- (b) Showing your workings, write the output from the execution of the following boolean expressions:
- (i) Txttest.Test = CStr ((2 +3 < 6)). (2 marks)
 - (ii) Dim a As Integer = 4
Dim b As Integer = 2
Dim c = “star”
(C.Length – b) = = a/2 (2 marks)
- (c) (i) Illustrate with an example implicit line continuation. (2 marks)
- (ii) Distinguish between “narrowing” and “widening”. (4 marks)
- (iii) Distinguish between “CDBl” and “CStr”. (4 marks)
- (d) Define “intellisense” as used in Visual Basic. (2 marks)
- (Total: 20 marks)**

QUESTION FIVE

- (a) Distinguish between:
- (i) “Interpreter” and “assembler”. (4 marks)
 - (ii) “Design view” and “code window”. (4 marks)
- (b) Explain the following terminologies as used in programming:
- (i) Machine Language. (2 marks)
 - (ii) High-Level Language. (2 marks)
 - (iii) TabIndex. (2 marks)
- (c) Write a simple program using a “do while” loop that will run infinitely by clicking the command button cmdinfinite. (4 marks)
- (d) List any two events used in the command button on mouse click. (2 marks)
- (Total: 20 marks)**
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