KASNEB

CICT PART II SECTION 3

STRUCTURED PROGRAMMING

THURSDAY: 26 May 2016.   **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 C programming language.

QUESTION ONE
(a)   Outline four methods of incrementing an integer variable in C programming.   (4 marks)

(b)   Explain three disadvantages of collaborative application development.   (6 marks)

(c)   Differentiate between "iteration" and "recursion" as used in structured programming.   (4 marks)

(d)   Write a function named ComputeAverage that could be used to sum two numbers, find the average and display the
result in the main program.   (6 marks)

                                                                                                   (Total: 20 marks)

QUESTION TWO
(a)   Explain the effect of the following escape sequences as used in C programming:

        (i)   \n   (1 mark)

        (ii)   \t   (1 mark)

        (iii)   \a   (1 mark)

        (iv)   \\   (1 mark)

(b)   Identify the errors in the following code segment:

```
While marks < = 100
    {
        printf ("Adding marks")
        marks = = marks + 10
        }
    }
```
                                                                                                     (5 marks)

(c)   Differentiate between "w" and "w+" file handling modes in C programming.   (4 marks)

(d)   The table below contains entries of a number, its square and cube:

Number	Square	Cube
5	25	125
4	16	64
3	9	27
2	4	8
1	1	1

Required:
Write a C program using "while loop" to generate the numbers as shown above.   (7 marks)

                                                                                                   (Total: 20 marks)

QUESTION THREE

(a) Describe the following terms as used in C programming:

    (i) Dry running. (2 marks)

    (ii) Interpreter. (2 marks)

(b) Outline two reasons why comments are used in a program. (2 marks)

(c) Distinguish between "signed integer" and "unsigned integer" in the context of C programming. (4 marks)

(d) Highlight six benefits of using sub programs to a programmer. (6 marks)

(e) Write the output of the following program statements:

    (i) Ceil (8.3). (2 marks)

    (ii) Pow (2,4). (2 marks)

(Total: 20 marks)

QUESTION FOUR

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

    (i) Type casting. (2 marks)

    (ii) typedef. (2 marks)

(b) Study the C program extract given below:

```
main ( )
  {
    char   name [4];
        name [0] = 'C' ;
        name [1] = 'A' ;
        name [2] = 'T' ;
        name [3] = 0 ;

    printf ("The output is % s \n", name) ;
    printf ("This is %c \n", name[2] ;
  }
```

Required:

    (i) Write the output of the above program. (4 marks)

    (ii) Explain the scope of the variable "name". (2 marks)

(c) Distinguish between a "pointer" and an "array" as used in C programming. (4 marks)

(d) Highlight six header declarative used in C programming. (6 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Outline four factors to consider when choosing a programming language. (4 marks)

(b) Describe three elements that could be included in a user manual to make it more user friendly. (6 marks)

(c) Differentiate between "passing parameters by value" and "passing parameters by reference" as used in C programming. (4 marks)

(d) Using an example, contrast between "else-if" and "switch" control structures. (6 marks)

(Total: 20 marks)

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