

# 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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