kasneb

CICT PART II SECTION 3

STRUCTURED PROGRAMMING

THURSDAY: 30 November 2017. **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) State three advantages of functions as used in C programming. (3 marks)

(b) Write a C program statement to display the sentence below:

Did you know that "code blocks" is a C program editor? (2 marks)

(c) Differentiate between the following terms in relation to structured programming:

(i) "Source code" and "intermediate code". (4 marks)

(ii) "Object code" and "executable code". (4 marks)

(d) The table below shows the cost of electricity per unit:

Consumption Range	**Cost (per unit)**
Over 700 units	4.5
501 - 700 units	3.5
200 - 500 units	2.5
Below 200 units	1.5

Required:
Write a C program that prompts a user to input the number of units consumed, compute the total cost and display the result. (7 marks)

(Total: 20 marks)

QUESTION TWO

(a) Consider the following program segment:

```
int b = 33;
int *p ;
p  = &b;
```

Required:
Write two program statements that could be used to output the value of b. (4 marks)

(b) State the role of the following C library functions as used in structured programming:

(i) Strcpy ( ). (2 marks)

(ii) Strcat ( ). (2 marks)

(c) A lecturer intends to store information about three CICT students. The attributes needed are: student name, registration number and marks obtained.

Required:
Write a C program that prompts a user for the students details, stores and displays the information of the students using a structure. (12 marks)

(Total: 20 marks)

QUESTION THREE

(a) Explain two reasons why C programming language is popular. (4 marks)

(b) Outline two disadvantages of using pointer in C programming. (2 marks)

(c) Distinguish between a binary and a text file. (4 marks)

(d) Explain the errors in each of the following C language statements:

(i) scanf ("f", &number); (2 marks)

(ii) printf ("Amount is\n," x * y); (2 marks)

(iii) if (count = < 10) (2 marks)

(iv) int x = = 5; (2 marks)

(v) include <stdio.h>; (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Differentiate between "crowd sourcing" and "outsourcing" as used in application development. (4 marks)

(b) Using a For loop, write a C program to display the output shown below:

Output:

24 20 16 12 8 4 0

(6 marks)

(c) Using a diagram, distinguish between a "singly linked list" and a "doubly linked list". (6 marks)

(d) Outline four advantages of using arrays in C programming. (4 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Explain each of the following programming terms:

(i) Imperative programming. (2 marks)

(ii) Declarative programming. (2 marks)

(b) Explain three main types of translators as used in structured programming. (6 marks)

(c) Write a C program that accepts an input of type integer from a user and stores in a file named cict.txt located in hard disk drive G.

The program should display an error message when the file does not exist. (10 marks)

(Total: 20 marks)

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