



UNIVERSITY EXAMINATIONS: 2013/2014
ORDINARY EXAMINATION FOR THE BACHELOR OF SCIENCE
IN INFORMATION TECHNOLOGY

BIT 1303A PROGRAMMING METHODOLOGY

DATE: AUGUST, 2014

TIME: 2 HOURS

INSTRUCTIONS: Answer Question ONE and any other TWO

QUESTION ONE

a) Define the following as they apply to programming

- i.) Flowchart
- ii.) Pseudocode
- iii.) Object code
- iv.) Pointer
- v.) Pre-processor directive

[5 Marks]

b) Name any four rules adopted in naming variables

[2 Marks]

c) A program is required to calculate and output the sum and product of all odd integers between 39 and 87 inclusive.

As part of your solution to the problem above, write:

- i). An algorithmic solution for your answer
- ii). Draw a flow chart to represent this

[5 Marks]

d) Differentiate between the following

- i). Keyword and identifier
- ii). Function prototype and function definition
- iii). Define and include preprocessor commands

[6 Marks]

e) Write a program segment that does the following;

- i). Initialize the 5 element of an integer array **count** to zeros

- ii). Add 2 to each of the 5 elements of the array **count**
- iii). Print the 5 values of the array **count** sorted in ascending order

[9 Marks]

f) Differentiate between a **struct** and a **Union**

[2 Marks]

g) Define a pointer showing how an describing how and integer pointer is initialized

[1 Marks]

QUESTION TWO

Make a structure declaration for an **ACCOUNT** with the following members

Accno

Balance

Acc_name

[4 Marks]

a) Using the structure defined above, write a statement that creates a structure variable called **Saving_Account**

[2 Marks]

b) Using the variable, write a program segment to perform the each of following

i.) Access the structure member **balance** and assign to it the value 200

ii.) Read a name through the keyboard and store it in the address for account name

[5 Marks]

a) Define what you understand by the following concepts

a) Modular programming

b) Structured Programming

[4 Marks]

b) Explaining whether the following statements are valid or invalid

a) `int =0 total;`

b) `float total@`

c) `sum+=k;`

d) `define const pi 3.14;`

e) `include "c:\first.c"`

[5 Marks]

QUESTION THREE

a) Structured programming is characterized by the following;

i.) Variables

ii.) Control structures

iii.) Assignments

iv.) Modules

Explain the role played by each of the above feature

[16 Marks]

b) List and briefly explain 2 ways that data is shared in C

[4 Marks]

QUESTION FOUR

a) A program is required to compute the sum of even numbers between 30 and 366.

i.) Write a pseudocode as part of the solution to this problem

ii.) Draw a flowchart to depict solution to the problem

iii.) Implement the above using C

[8 Marks]

b) Explain with a diagram how a while control construct differs from a do while

[4 Marks]

c) Give one similarity and 3 differences between a compiled and interpreted Language

[4 Marks]

d) Define what a comment is in C and their importance

[4 Marks]

QUESTION FIVE

a) Define the following

i.) Function prototype

ii.) Function call

iii.) Function definition

[6 Marks]

b) Write a program that can be used to get the area and volume of a cylinder (Hint:

$\text{area} = 2 \text{PI } r(r + h)$ and $\text{volume} = \text{PI } r^2 h$)

As a solution to the problem, write a function AREA and VOLUME to return

the respective values. These functions are called via main ()

[11 Marks]

c) Define the following

i.) Syntax

ii.) Semantic

iii.) Programming Language.

[3 Marks]