



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (TELECOMMUNICATION AND INFORMATION TECHNOLOGY)

BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)

BACHELOR OF SCIENCE (APPLIED PHYSICS AND TECHNOLOGY)

BACHELOR OF SCIENCE (STATISTICS AND PROGRAMMING)

BACHELOR OF SCIENCE (ANALYTICAL CHEMISTRY)

BACHELOR OF SCIENCE (ACTUARIAL SCIENCE)

BACHELOR OF SCIENCE (MATHEMATICS)

SMA 191: INTRODUCTION TO COMPUTER PROGRAMMING

DATE: 8/5/2019

TIME: 8.30-10.30 AM

INSTRUCTIONS

Answer **question ONE** and any other **TWO** questions.

QUESTION ONE (30 MARKS)

- a)
 - i Outline three **rules** to be observed when choosing variable names in C.(3 marks)
 - ii Explain the **difference** between a Compiler and an Interpreter. (4 marks)
 - iii Explain the **difference** between structured programming and object oriented programming paradigms. (4 marks)
 - iv Explain the difference between **signed** and **unsigned** data type as used in C. (4 marks)
- b)
 - i Distinguish between **float** and **double** numbers as used in C programming languages (4 marks)

- ii What is a **storage class specifier**? State three storage class specifiers. (4 marks)
- iii James, A student at Upendo University created a program that used an array to store data. Outline **three** properties that this data structure. (3 marks)
- iv With the aid of a diagram distinguish between Repeat...Until and While....Loop (4 marks)

QUESTION TWO (20 MARKS)

- a) **Explain** components of a c program. Use a Hallo World program. (8 marks)
- b) Explain **two** types of errors in C programming. (4 marks)
- c) Write a C program that would prompt the user to enter the choice of a fruit and display the message as shown in table 1. Use **if.....else** statement. (8 marks)

Choice	Message
O,o	I love oranges
A,a	My best fruit is apple
B,b	Bananas are sweet
Any other	I don't know the taste

QUESTION THREE (20 MARKS)

- a) Distinguish between a **source code** and an **object code** as used in in programming. (4 marks)
- b) Define the term inbuilt function as used in C programming. (2 marks)
- c) Identify any six **errors** in the following C code. (6 marks)

```
#include<stdhd.h>
Void Main()
{
Float x;
Printf("Enter the principal value (p)");
pcanf("%f",&p);
printf("Enter the intrest rate");
Scanf("%d",&r);
printf("Enter number of years");
Scanf("%f",&n);
I=r/100;
```

```

    }
    F=p*pow(1+i)n))
    Printf("The ultimate value is : 2f/n",f);
}

```

- d) Write a program in C language that would prompt a user to enter an integer. The program then checks whether the integer entered is an odd number and display an appropriate message. (8 marks)

QUESTION FOUR (20 MARKS)

- a) Explain each of the following statements as used in C programming language. (8 marks)
- switch;
 - default;
 - continue;
 - break.
- b) By use of a function write a C program that will calculate the volume of a sphere and return the calculated result. The function should accept radius as an argument. Hint $V = \frac{4}{3} \text{Pie} * r^3$. (12 marks)

QUESTION FIVE (20 MARKS)

- a) Write a program in C that will compute the sum of even numbers up to 100 using **for** loop. Within the range of 0 – 100. (8 marks)
- b) i Differentiate between a **structure** and a **union** (4 marks)
- ii Write a structure declaration for a **structure** called admission that has the following members: (6 marks)
- Name.
 - Age.
 - Course.
 - Admission number.
 - Marks for English and Kiswahili.
- iii Use the **structure** above to write a statement that creates a structure variable called student. (2 marks)