**Mount Kenya University.**

**UNIVERSITY EXAMINATION 2017/2018**

**SCHOOL OF COMPUTING AND INFORMATICS**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

 **BBIT/BSS/BEDA/BAS**

 **REGULAR**

**UNIT CODE:BIT 2201. UNIT TITLE:COMPUTER PROGRAMMING METHODOLOGY**

 **TIME 2:00PM MAIN EXAM. TIME 2 HOURS.**

**INSTRUCTIONS: Answer all Questions In section A and any other two in section B.**

**SECTION A(COMPULSORY -30 MARKS)**

**QUESTION ONE**

1. **Explain the use of continue and break statements in programming. (4Marks)**
2. **What is an array? (2 Marks)**
3. **State the function of each of the following special character sequences used in C**

**I)\n. (2 Marks)**

**ii)℅.2f. (2 Marks)**

**ii)\f. (2 Marks)**

1. **Briefly Explain the purpose of each of the following programming elements: (4 Marks)**
2. **Comments**
3. **Variables**
4. **Given the following C program: (5 Marks)**

**#include<studio.h>**

**#define SIZE 22;**

**Main()**

**{**

**Int index=1;**

**While (index=SIZE)**

**{**

**Printf(“I like C\n”,index++);**

**}**

**return 0;**

 **Rewrite the same program using for loop.**

1. **Discuss the unary operators with a sample C program. ( 4 Marks)**
2. **Explain steps used to execute a C program. (5 Marks)**

**QUESTION TWO**

1. **Explain two characteristics of each of the following categories of programming languages: (4 Marks)**
2. **Low level languages**
3. **High level languages**
4. **Identity errors in the program shown below. (5 Marks)**

**Main()**

**{**

**Int I;**

**printf(“enter a number “)**

**scanf “ ”&i;**

**if(i<=50)**

**printf(“\n entered number is <50)**

1. **Write a C program to find sum,average of any three numbers which are entered by the user through the keyboard. (4 Marks)**
2. **What is “reserved word” as used in programming? Give an example of reserved words in C. (3 Marks)**
3. **Describe the following types of programming errors. For each,identify one possible cause:**

**I).Syntax. (2 Marks)**

**ii).Semantic. (2 Marks)**

**QUESTION THREE**

1. **Explain the output of the following C program. (4 Marks)**

**#include<studio.h>**

**main()**

**{**

**int a=6,b=10;**

**printf(“a=℅d\n,a++);**

**printf (“b=℅d\n,++b);**

1. **Write a program that calculates and displays the result of the volume of a cylinder. The variables must be input on runtime. (6 Marks)**
2. **Distinguish between the following terms as used in C: (5 Marks)**
3. **The use of () and{} brackets**
4. **Source code and Object code**

 **d)Explain the term algorithm and give three properties of good algorithm. (5 Marks)**

**QUESTION FOUR**

**a)What is data type? Explain three basic data types in C. (6 Marks)**

**b)Mount Kenya University requires a program to compute Income tax and Net Salary for its employees. The company offers tax relief of Kshs.650 for single employees and Kshs.1,100 for married employees. The relief will be deducted from the gross salary,to give the taxable income.This will be computed in the following rates**

|  |  |
| --- | --- |
| **Taxable Income** | **Rate (℅)** |
| **<5000** | **0** |
| **5000-19999** | **6** |
| **20000-36999** | **9** |
| **37000 and above** | **16** |

**The tax charged is then deducted from the Taxable income to give the Net salary.**

**Design a program flowchart for a program that will input the employee name,number, marital status and gross income. The program will compute the tax and net salary,and then print out the employee pay slip. (9 Marks)**

**c)Describe the role of programmer in software development. (5 Marks)**