UNIVERSITY OF NAIROBI

THE DEGREE OF BACHELOR OF SCIENCE IN DATA SCIENCE

CAT 1
(50 marks)

1. Write a C program to find the maximum of three numbers using conditional operators (4 marks)

2. Write a C Program to find the sum of digits in a given number   (3 marks)

3. Study the codes below (a to e) and answer each accordingly   (8 marks)

What will be output of the following code or find errors if present in the code

a)
```
main()
{
        Int = 10 ;
        Char = "d" , i
        K=pow(5,6);
        I+=k;
}
```

b)
```
j = 2 ;
nbegin=10; n = 0; nend = 3;
for (i=0;i<=nend;i++)
{
        n=nbegin+i*nend;
        printf("%d",n+j);
        j++;
}
```

c)
```
main()
{
        int x , y ;
        x = 753;
        y = 722;
        printf(" x & y is %@" , x & y );
}
```

d)
```
main()
{
        char c[2] = "A";
        printf("\n%c",c[0]);
        printf("\n%s",c);
}
```

e)
```
main()
{
        int b[] = { 10,20,30,40,50 };
        int i, *k;
        k = b;
        for ( i = 0 ; i<= 4 ; i++)
        {
                printf("\n%d",*k);
                k++;
        }
}
```

4.	The Bitwise operators are used to perform bit-level operations on the operands. Write a code snippet in C programming that performs Bitwise AND, Bitwise OR and Bitwise XOR on two variables namely M and N. Where M = 25 and N = 5. The output should display operands, the operator and the output value.		(5 marks)

5.	Write a C function named `calculateArea` that accepts the radius of a circle as a parameter and returns the area of the circle. Use the function in the `main()` function to display the area for a given radius		*(4 marks)*

6.	Identify the standard input and output functions used in C and state the header file required		*(4 marks)*

7.	Write a C program that prompts the user to enter their **name and age**, then displays the entered values in a properly formatted sentence		*(5 marks)*

8.	Differentiate between an `if-else` statement and a `switch` statement *(4 marks)*

9.	Write a C program that accepts a student's **marks** and displays		(6 marks)

	i.	"Distinction" if marks ≥ 75
	ii.	"Pass" if marks are between 50 and 74
	iii.	"Fail" if marks are below 50

10.	Write a C program that uses a loop to display the **first 10 even numbers** starting from 2 *(4 marks)*
11.	*Explain* the meaning of a conditional statement in C programming		(3 marks)