

CHUKA



UNIVERSITY

## UNIVERSITY EXAMINATIONS

## FIRST YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF COMMERCE

## BCOM 364: COMPUTER PROGRAMMING II

STREAMS:

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 12/04/2023

2.30 P.M – 4.30 P.M

## INSTRUCTIONS:

*Answer Question 1 and Any Other TWO Questions*

**QUESTION 1 (30 MARKS)**

- a)
- b) Define the following terms:
- i) Object Oriented Programming
  - ii) Class
  - iii) Object (6 marks)
- b) Distinguish between polymorphism and inheritance as applied in Object Oriented Programming . (4 marks)
- c) With the aid of a diagram, distinguish between base class and derived class as applied in object oriented programming. (3 marks)
- d) (i) What is meant by structured programming? (1 mark)  
(ii) State 3 advantages of using modules in program development. (3 marks)
- e) How do you declare a variable in C++ ? (2 marks)
- f) Write a simple C++ program that adds two integers and returns the result (4 marks)
- g) Describe two different ways of passing arguments to a function. (4 marks)
- h) The following is a C++ program. Use it to answer the question that follows
- ```
#include<iostream.h>
{
Integer I, j, y;
for(i=1; i<n; i++)
Y:=i*y;
}
```
- Identify three errors in the program (3 marks)

**SECTION B: ANSWER ANY OTHER TWO****QUESTION 2 (20 MARKS)**

- a) Outline three characteristics of an object. (3 marks)
- b) Explain four advantages of object-oriented paradigm. (4 marks)
- c) Identify the syntax errors in the following program by rewriting its correct version. (6 marks)

```
#include [oistream.h]
Class payItNow {
    int Charge;
    PUBLIC:
    void Raise( ){cin>>Charge;}
    void Show{cout<<Charge;}
}
void Main( ){
    PayItNow P;
    P.Raise( );
    Show( );
}
```

- d) . Consider the following segment of a program:-

```
.....
If(sex is male)
{
    If (salary > 10000)
        Bonus=0.05 * balance;
    Else
        Bonus=0.02 * balance;
}
Else
{
    Bonus=0.02 * balance;
}
Balance=balance * bonus;
```

Required:-

- i).Identify what type of If statement is this and why? (2 marks)
- ii).Explain the execution flow for the above program segment. (2marks)
- ii). Draw a well labeled flow chart to represent the above execution procedure. (3marks)

**QUESTION 3(20 MARKS)**

- a) With the aid of simple examples, **distinguish** between the following terms (6 marks)
- i) Class and object
  - ii) Pass-by-value and pass-by-reference.
- b) With the aid of diagrams describe each of the following: (6 marks)
- i) Multiple inheritance
  - ii) Multilevel inheritance
- c) Explain THREE Access specifiers used in C++ program (6 marks)
- d) How do you declare an array in C++? (2 marks)

**QUESTION 4 (20 MARKS)**

- a) Define the following terms **and** describe how each is implemented (4 marks)
- i) Constructor function
  - ii) Destructor function
- b) State four differences between function overloading and function overriding (4 marks)
- c) Write a C++ program function that will calculate the square of number 1 to 20 (4 marks)
- d) Explain FOUR standard libraries usable in C++ programming (4 marks)
- e) Using a flow chart, explain the differences between a while loop and a do-while loop as used in structured programming (4 marks)

**QUESTION FIVE: 20 MARKS**

- a) (i) What is variable. [2 marks]  
 (ii) What are the rules followed when declaring variable. [3 marks]
- b) What is a Constant? How are they defined? [2 marks]
- c) Explain the two classification of base class. Also illustrate that by sample syntax (2 marks)
- d) Explain the following terms as used in OOP:  
 i). Pure virtual functions [3 marks]  
 ii).Encapsulation [3 marks]
- e) Discuss the following Operators used in C++:-  
 i) Conditional Operators [2 marks]  
 ii) Increment and decrement operator (explain both prefix and postfix in all the cases (3marks)
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