

ZIMBABWE EZEKIEL GUTI UNIVERSITY



FACULTY OF HEALTH, SCIENCE AND TECHNOLOGY

Department of Digital Technology

Module: CDT204 OBJECT ORIENTED PROGRAMMING

Exam Duration: 4 hours

End of Semester Examination 2021

Instructions

- (i) Attempt all questions in section A, the mark allocation for each question is shown in square brackets.
- (ii) Number your answers accordingly.
- (iii) The total marks for the examination is 100.
- (iv) The Examination consists of Section A and Section B
- (v) Answer any **three** Questions from Section B
- (vi) Write your answers of section A in answer booklet provided
- (vii) Write your answers of section B on your computer under one folder

Section A – Theory Question –[40 marks]

Question One

- a) Determine the output of the following Java statements given that: `int a=10;`
`int b=10;`
- `System.out.println(x++);`
 - `System.out.println(--x);`
 - `System.out.println(++x);`
 - `System.out.println(a-- + ++a);`
 - `System.out.println(b-- + b++);` [5 marks]
- b) Using an example demonstrate your understanding of the term Polymorphism in Java [12 marks]
- c) Describe how a thread can be created in java[6 Marks]
- d) Write a program segment to demonstrate how to declare a constructor in Java [5 marks]
- e) Explain the following terms in relation to object oriented programming
- Instance
 - Class
 - Encapsulation
 - Thread
- [12 Marks]

Section B- Practical Questions- [60 marks]

Answer any three questions from section B

Question two

Code a program to create a class called **Skype** with instance variables **callDuration** and **fixedCharge** and a method **calcCharge()** which will calculate video call charge per month for an **Skype** user given by **callDuration* fixedCharge**. The program must use mutator and accessor methods assign values to the instance variables. Create an **Skype** object (user) named **Tinerufaro**. Determine and display her monthly skype video call charges for this current month. [20 Marks]

Question three

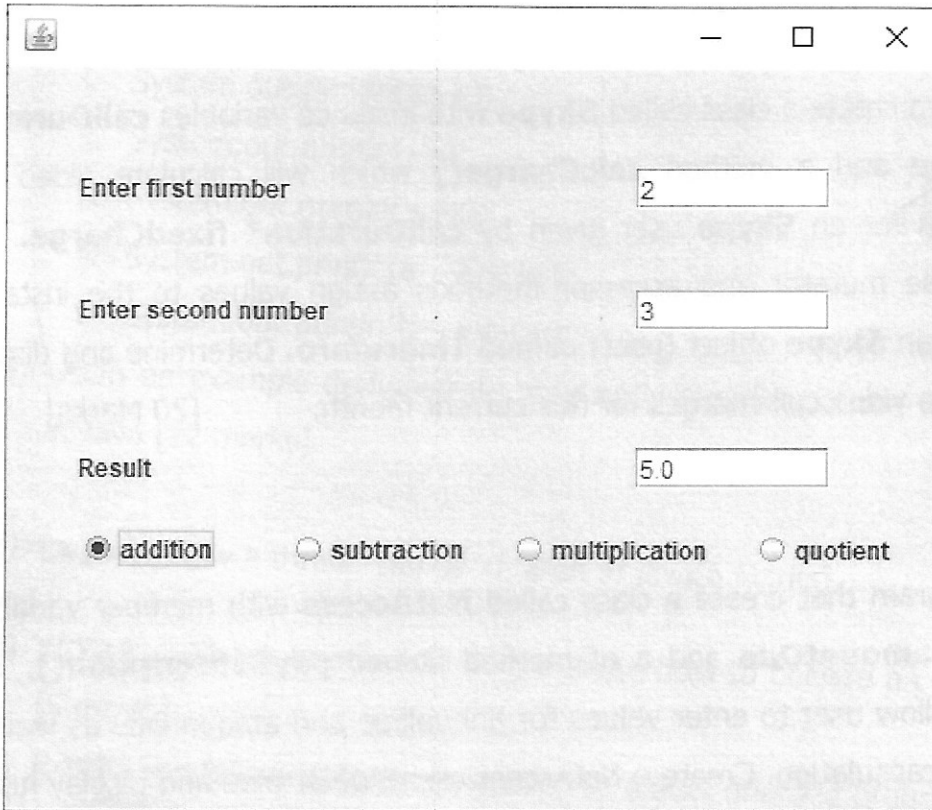
Write a java program that create a class called **NetAccess** with member variables **annualFee** and **amountDue** and a of method named **paySubscription()**. The program should allow user to enter values for annualFee and amountDue as well as implement full encapsulation. Create a NetAccess client, determine and display his or her new annualFee after paying a subscription NB **new_annual_fee=annualFee-amountDue**[20 Marks]

Question four

Write a Java program that uses a class called **Amazon**, with an method **onlinePayment()**, member variables **visaBalance** and **totalPrice**. The program must create an object (Amazon client), determine and display his or her new visa balance after making an online payment. NB **visa_balance = visaBalance – totalPrice** [20 Marks]

Question five

Design a java swing application to perform the basic arithmetic operations as demonstrated by the interface below. [20 marks]



The image shows a screenshot of a Java Swing application window. The window has a title bar with standard minimize, maximize, and close buttons. The main content area contains the following elements:

- A label "Enter first number" followed by a text input field containing the value "2".
- A label "Enter second number" followed by a text input field containing the value "3".
- A label "Result" followed by a text input field containing the value "5.0".
- A set of radio buttons for selecting an operation: "addition" (selected), "subtraction", "multiplication", and "quotient".