

CHUKA

UNIVERSITY



UNIVERSITY EXAMINATIONS**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE
IN APPLIED COMPUTER SCIENCE****ACSC 332: DESKTOP APPLICATION AND DEVELOPMENT****STREAMS: 32S1****TIME:2 HOURS****DAY/DATE: TUESDAY 3/12/2019
10.30 A.M****8.30 A.M –****INSTRUCTIONS:**

- Answer Question **ONE** and any other **TWO** questions.
- Write legibly and use your time wisely.
- This is closed book exam. References not allowed whatsoever.

QUESTION ONE (COMPULSORY): 30 MARKS [ATTEMPT ALL QUESTIONS IN THIS SECTION]

- a. Swing replaces ‘heavyweight’ AWT containers with ‘lightweight’ components or widgets. Discuss. [4marks]
- b. JFC components consist of **Top-level containers**, **General purpose containers**, **special purpose containers**, **Basic controls**, **uneditable information displays** and **Editable displays of formatted information**. Using appropriate examples, Discuss each component features and attributes? [8marks]
- c. Programmers developing desktop applications would prefer to use swing components over java AWT components, Discuss.
[4marks]
- d. In the design of a desktop GUI application, several components are brought together under Jframe. Explain. [8marks]
- e. Discuss Spring Rich's capabilities as a desktop application framework?
[6marks]

- f. JDBC API is a Java API that can access any kind of tabular data, especially data stored in Relational Databases.
- (i) Explain what is a relational database [2marks]
 - (ii) Explain the tasks of API in JDBC library [4marks]
 - (iii) JDBC API supports two tier and three tier processing models for data base. Explain. [4marks]

SECTION B: CHOOSE ANY TWO QUESTIONS

QUESTION TWO [20MARKS]:

- a. Discuss the principle concepts of object oriented programming? [8 marks]
- b. Differentiate between encapsulation and abstraction [4marks]
- c. Discuss the different forms of polymorphism. [8marks]

QUESTION THREE [20 MARKS]

With use of examples, demonstrate how each of the following is implemented in Java.

- (i) Inheritance [5marks]
- (ii) Polymorphism [5marks]
- (iii) Encapsulation [5marks]
- (iv) Abstraction [5marks]

QUESTION FOUR [20 MARKS]

- (i) There are at least six steps involved in building of JDBC application. Explain [12mks]
- (ii) To build apps that other people are going to use, one needs to create graphical interfaces. Server side applications can be done as console applications. However Client side needs graphical user interfaces. Discuss this scenario. [8marks]

QUESTION 5 [20 MARKS]

1. Consider the following code in Object Oriented Programming. it defines the start of a class to represent bank accounts:

```
Public class BankAccount{  
    Int interest_rate = 0.3  
    Public BankAccount(String name, int number, double balance){  
        this.name = name;  
        this.number = number;  
        this.balance = balance; return 0; }
```

- a) Add instance methods called deposit() and withdraw() which increase and decrease the balance of the account. Make sure the withdraw() method doesn't allow the account to go into overdraft. Add a third method called add_interest() which adds interest to the balance (the interest should be the interest rate multiplied by the current balance).

[10

marks]

- b) Create a subclass of BankAccount called StudentAccount. Every StudentAccount should have an overdraft limit of Kshs 1000. Write a constructor for the new class. Override the withdraw() method to make sure that students can withdraw money up to their overdraft limits.

[10 marks]
