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: BSC (APPLIED COMPUTER SCIENCE) Y3S1   TIME: 2 HOURS

DAY/DATE: FRIDAY 07/12/2018   2.30 P.M. – 4.30 P.M.

INSTRUCTIONS:
- Answer Question **ONE** and any other **TWO** questions.
- Electronic, non-programmable calculators may be used

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

a. With use of examples to illustrate your answer, explain Java Foundation classes   and their application areas   [6 marks]

b. Explain why Programmers developing desktop applications would prefer to use swing components over java AWT components.   [6 marks]

c. Explain Spring Rich's capabilities framework for developing desktop application.

[4 marks]

d. When building large Enterprise applications, programmers may choose to use different layers such as Business logic, User interface and Database layers. Discuss.   [6 marks]

e. Polymorphism is a common phenomenon in object oriented programmers. Discuss what it is and how it benefits OOP programmers.   [4 marks]

f. Consider the following loop:

```
for (int count = 0; count < 7; count++)
{
```

```
                   System.out.println(2*count+1);
            }
```

What would be the output of the above code?
[4 marks]

    g.   A for loop has three parts. Discuss.   [6 marks]

SECTION B: CHOOSE ANY TWO QUESTIONS FROM THIS SECTION
QUESTION TWO [20 MARKS]: With use of relevant examples and sketches, demonstrate the implementation of the following in Java.

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

QUESTION THREE [20 MARKS]

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

QUESTION FOUR [20 MARKS]

A palindromic word is one that reads the same backwards as forwards. Hence the words hello and peel are not palindromes, but the words peep, deed, and aibohphobia(fear of palindromes) are palindromes.

a) Define a class called Palindrome, with its constructor.   **[4 marks]**

b) In your Palindrome class, create a method called reverse () which takes a string argument. Your method should return the reverse of the argument as a string. For example, if the argument is _Foobar_ then your method should return _rabooF_.   **[8 marks]**

c) Create a second method in Palindrome called isPalindrome() which takes a string argument. This method should return True if the argument is a palindrome and False otherwise.
                                                    [10 marks]

QUESTION 5 [20 MARKS]

(a) Consider the following code fragment:

```
int sum = 0;
int i = 0;
while (i < 5)
{
   sum += i;
   i++;
}
System.out.print(sum);
```

Replace the while loop in the fragment above with a **for** loop that prints the same value
of **sum** variable.   [8 marks]

(b) Consider the application below. It consist of a class and a single main method
that asks the user to input an integer. The main method tells whether the number
is even or odd.
A sample output for your class would be:

```
Enter an integer: 12
12 is an even number
import java.util.Scanner;
public class MyClass {
   public static void main(String[] args) {
      Scanner input = new Scanner(System.in);
      System.out.print("Enter an integer: ");
      int num = input.nextInt();
      // your code goes here
   }
}
```

Complete the application   [12 marks]