



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN
ACTUARIAL SCIENCE WITH IT**

2ND YEAR 1ST SEMESTER 2017/2018 ACADEMIC YEAR

MAIN CAMPUS (REGULAR)

COURSE CODE: SCS 202

COURSE TITLE: OBJECT-ORIENTED PROGRAMMING IN JAVA

EXAM VENUE: **STREAM:** (Bsc. Actuarial)

DATE: Sep-Dec 2017

EXAM SESSION:

TIME: 2.00 HOURS

INSTRUCTIONS:

- 1. Answer Question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on the question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION ONE [30 MARKS]

a) Explain the following java concepts (6 marks)

- i. Polymorphism
- ii. Encapsulation
- iii. Inheritances
- iv. Data abstraction

b) Enumerate the Rules for creating Identifies in Java . (4 Marks)

c) Kenya Commercial Bank has introduction an incentive policy of giving bonus to all its deposits holders. The policy is as follows. A bonus of 2% Of the balance held on 31st December is given to every one irrespective of their balances, and 10% is given to female account holder if their balance is more than Kshs 5000/=,Develop a logic structure using if else control structure and block diagram to illustrate the above statement (10 Marks)

d) The following is snippet code of simple java program. Explain in depth the meaning of each and every line of code (6 Marks)

```
/*
This is a simple Java program.
Call this file "Example.java".
*/
class Example
{
// Your program begins with a call to main().
public static void main(String args[])
{
System.out.println("This is a simple Java program.");
}
}
```

e) Define Constants and Variables as used in java Programming (4 Marks)

QUESTION TWO [20 MARKS]

- a) Explain four primitive data types in java (4 Marks)
- b) Using a block diagram explain conditional and iterative methods of solving problems (4 Marks)
- c) What is an array? Illustrate how arrays may be declared (4 Marks)
- d) What are Separators, Discuss any FOUR separators in java. (4 Marks)
- e) Write a Java program to print the given number is Armstrong or not (4 Marks)

QUESTION THREE [20 MARKS]

- a) Write a program in java to add two matrices using arrays concept (6 Marks)
- b) Explain the structure of Java programming language (4 Marks)
- c) Write a program to implement both arithmetic and logical operator (4 Marks)
- d) Write a java program to give the following output (6 Marks)

```
-----Configuration: <Default>-----
0
0 1
0 2 4
0 3 6 9
0 4 8 12 16
0 5 10 15 20 25
0 6 12 18 24 30 36
0 7 14 21 28 35 42 49
0 8 16 24 32 40 48 56 64
0 9 18 27 36 45 54 63 72 81

Process completed.
```

QUESTION FOUR [20 MARKS]

- a) Using Switch statements, implement ATM operations (6 marks)
- b) Write a program to convert the given temperature in Fahrenheit to Celsius using the following formula $C=(F-32)/1.8$ (6 marks)
- c) Explain any two derived data type in Java Programming (4 Marks)
- d) Explain the following controls statements using diagrams and syntaxes (4Marks)
 - i. While statements
 - ii. do -while statements

QUESTION FIVE [20 MARKS]

- a) As a programmer in a banking sector write a program to calculate the compound interest (6 marks)
- b) Using syntax explain for loop (4 Marks)
- c) Develop a program to provide a solution for a payroll systems of the University staff which will accept the employee PFNo, Name, Department , Grade, the Hourly rate of payment , Hours works and the flat rate of Kshs 10,000 and Kshs 20,000 for entertainment and House allowance respectively (10 Marks)