

WOMEN'S UNIVERSITY IN AFRICA



Addressing gender disparity and fostering equity in University Education

FACULTY OF MANAGEMENT AND ENTREPRENEURIAL SCIENCES

BSc HONOURS DEGREE IN INFORMATION SYSTEMS

MAIN PAPER

IS222: CONCEPTS OF JAVA

INTAKE 24: SECOND YEAR SECOND SEMESTER

TIME: 2 HOURS AFTERNOON

INSTRUCTIONS TO CANDIDATES

Answer any **four** questions.

Question 1

a) Identify whether the following list of identifiers are legal variable names or not. Explain why the variable names are legal/illegal.

- i. priceOfBricks
 - ii. net-pay
 - iii. x1
 - iv. cost of paper
 - v. INTEGER
 - vi. ?X?Y
 - vii. 1856AD
 - viii. float
- [16]

b) Write a program to convert any amount of US dollars into Zimbabwean dollars and output your results. Write the conversion rate of your choice for the Zim dollar as a constant. The Program must accept user input of the amount of US dollars to be converted and then display the Zim dollar equivalent.

[9]

Question 2

a) Determine the output of the following Java statements given that: `int a=10; int b=10;`

- i. `System.out.println(++a);`
 - ii. `System.out.println(b--);`
 - iii. `System.out.println(--a);`
 - iv. `System.out.println(a++ + ++a);`
 - v. `System.out.println(b++ + b++);`
- [10]

b) In Museyamwa Company, worker efficiency is determined on the basis of the time required for a worker to complete a particular job. If the time taken by the worker is between 2-4 hours, then the worker is said to be highly efficient. If the time required by the worker is between 5-6 hours, then the worker is ordered to improve speed. If the time taken is between 7-9 hours, the worker is given training to improve his speed, and if the time taken by the worker is more than 9 hours, then the worker has to leave the company. Write a program to accept time taken by the worker from the keyboard and determine the efficiency of the worker.

[15]

Question 3

- a) What is the effect of a final access modifier when applied to each of the following entities in java;
- i. Class;
 - ii. Method;
 - iii. instance variable; and
 - iv. static variable [8]
- b) Using a switch statement write a program that will accept a mark from the user and then display the grade using the following grading system.
- 0 - 49 = F
 - 50 - 59 = Pass
 - 60 - 74 = Credit
 - 75 – 100 = Distinction [17]

Question 4

- a) Discuss the following terms with examples:
- i. Throw; [3]
 - ii. Throws; [3]
 - iii. Throwable; and [3]
 - iv. Finally. [4]
- b) With the aid of code snippets, discuss any 3 types of runtime exceptions. [12]

Question 5

- a) Differentiate between overloading and overriding in Java [4]
- b) Explain the following features of java;
- i) Platform independence; [2]
 - ii) Portability; and [2]
 - iii) Object oriented. [2]
- c) Code a Java application which prompts the user to enter 15 integers, then computes the sum and average, and then prints them to the screen. [15]

Question 6

a) With aid of code snippets, explain the following terms in Java;

iv) Constructor;

v) Encapsulation;

vi) Method;

vii) Variable scope;

viii) Inheritance; and

ix) Interface

[18]

b) Explain the difference between the while loop and the do while loop. Show examples. [7]

END