CRAWFORD UNIVERSITY, FAITH CITY, IGBESA

COLLEGE OF NATURAL AND APPLIED SCIENCES
DEPARTMENT OF COMPUTER AND MATHEMATICAL SCIENCES
RAIN SEMESTER SESSION: 2020/2021

COURSE CODE: CSC208
COURSE TITLE: COMPUTER PROGRAMMING WITH JAVA
UNITS: 3 **TIME: 2hr:30mins**

ANSWER QUESTION 1 AND ANY OTHER THREE QUESTIONS

1a. One of the reasons why Java is widely accepted as one of the best programming languages of today is that "Java is platform independent". Explain the underlined statement in not more than two lines. 2marks

b. Write a java program using a function to add numbers from 1 to N together, such that if the next number to be added is divided by 2 and the remainder is not equal to zero, it should be added up, else it should be discarded from the summation. 10marks

c. Explain the following Java programming features i. Object-oriented ii. Distributed iii. Multi-threaded 3mark

2a. Given the following code snippet:

```
int i = 20;

int n = ++1 %4;
```

What are the values of i and n after the code is executed 3marks

b. List five primitive data types that Java supports. 5marks

c. Write a Java program to display the first 50 terms of this series 2,2,4,6,10…….. 7marks

3a. List four (4) qualities of a good programmer 4marks

b. Write a Java program to display all the leap years that are divisible by 4 from 1800 to 2021 7marks

c. State the importance of the following i. Java Virtual Machine iii Java Runtime Environment 4marks

4a. Write a Java program using function to solve the probability density function below

$$y = \begin{cases} x+2 \cdots\cdots x<2 \\ x-1 \quad otherwise \end{cases}$$ 6marks

b. Write a Java program that will accept any three numbers and print out the numbers in a sorted order 6marks

c. Give an example of a Java statement to illustrate each of these control structures

i. Break statement ii. Continue statement iii. Simple if statement 3marks

5a. In view of solving WAWA ALRIGHT software company payroll system with 200 employees, the manager suggest the system should be able to determine the tax payable for the employees' base on the amount of salary received per month. The below table shows the criteria of tax payment. Write a Java code to help solve the problem.

Salary	Tax payable
₦1000 – ₦3000	5% of salary
₦3500 – ₦5000	7% of salary
₦6000 – ₦8000	8% of salary
₦8500 – ₦9500	9% of salary

10marks

b. Explain the following attributes of object-oriented programming languages i. Encapsulation ii . Abstraction iii. Polymorphism iv. Class v. Inheritance 5marks

6a. In an attempt to build an Automated Teller Machine (ATM), you are employed as a programmer to help write a Java program to simulate the proposed system. ATM users are to enter their username and password for authentication. On successful login, the user can perform the following base on the option selected. Option: 1: Withdraw 2: Transfer 3: Deposit 4: Check Balance 5: Exit. The system should alert user once the verification is not successful.

Hint: (username: admin and password: 1011). 10marks

b. Write a Java code to add up all odd numbers from 1 to 400 except 5 and 11 5marks