UNIVERSITY OF MINES AND TECHNOLOGY, TARKWA

SECOND SEMESTER EXAMINATIONS, APRIL/MAY 2019

COURSE NO: CE 274
COURSE NAME: PROGRAMMING WITH JAVA
CLASS: CE II **TIME:** 2 HRS

Name**:** _____Index Number: _____

Attempt ALL Questions

1. Define a *variable* in programming and list the three types of *variables* in Java. **[2.5 marks]**

2. Explain the concept of *type casting* in programming and state the differences between *widening type* and *narrowing type* casting. **[2 marks]**

3. Define an *exception* in programming and list three instances when it is needed. **[2.5 marks]**

4. Briefly explain the functions of the following blocks in *exception handling*: **[1 mark each]**
   a) Try block b) Catch block c) Finally block

5. List three differences between the *Scanner* and the *BufferedReader*. **[3 marks]**
6. State an advantage and a disadvantage each of the compiler and interpreter in programming **[2 marks]**
7. Given the expression `(((x<=49)^(x >= 30))^(x<99) )&&((x>=20)||(x>=45))`, what is the value of the expression if: **[0.5 marks each]**
   a. x = 50
   b. x = 48
   c. x = 20
   d. x = 31
   e. x = 100
   f. x = 60

8. Identify and correct the errors in the following codes: **[2 marks each]**

a.

```
1  int i =0;
2  while (i<3);
3  {
4      if((i%2)==0){
5          System.out.println("i is " + i);
6      }
7      i=i+1;
8  }
```

b.

```
1  int maxMark == Math.max(68, 59, 70);
2  String message = "Welcome CE274 to Programming with Java";
3
4  System.out.println(message.charAt(3,5));
5  System.out.println(message.substring(0, 11, 20));
6  System.out.println(message.substring(42));
```

9. Rewrite the following *switch* statements into *if-else* statements. **[3 marks]**

```
int x; int y;
int z = (x + 2*y);

switch (z) {

case 4: y-= 2x^y;
break;
case 5: y+= x^y;
break;
case 6: y+= x + 3%y;
break;
default: y+= x-y;

}
```

10. List three visibility modifiers for classes and explain how they affect methods and data fields in classes with the mentioned visibility modifiers. **[3 marks]**

11. Briefly explain the differences between the following:
    a. A single dimensional Array and an ArrayList **[2 marks]**
    b. A HashSet and a HashMap **[2 marks]**

12. Mary, a novice in Java programming wants to use a multidimensional array in storing the names and marks of a students in the code shown below.

```
public class storeStdMarks {
```

```
public static void main (String[] Exams) {

        String dimArray [] = new Int [3][2];

        dimArray = [0][0] = John Annan;
        dimArray = [0][1] = 86;
        dimArray = [1][2] = Theresa Opoku;
        dimArray = [1][3] = 83;
        dimArray = [1][4] = Titus Clinton;
        dimArray = [1][5] = 79;
    }
}
```

a. Identify and correct the errors in Mary's code **[3 marks]**

b. Using a for-loop write a code for Mary who wants to print out only the marks of each student in the console. **[2 marks]**

13. Write a loop that computes the sum of all numbers between 2 and 100 inclusive that are whole number multiples of 5 or 7. **[2 marks]**
14. Write a conditional statement with three branches that sets y to: 2 if *x* is positive, -3 if *x* is negative, and 0 if *x* is zero. **[3 marks]**

Examiner: Nofong