ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE
FACULTY OF ENGINEERING
DEPARTMENT OF COMPUTER ENGINEERING

SECOND SEMESTER EXAMINATION, 2018/2019 ACADEMIC SESSION

COURSE TITLE: OBJECT-ORIENTED DESIGN AND PROGRAMMING

COURSE CODE: EEE 532

EXAMINATION DATE: 15th July 2019

COURSE LECTURERS: Prof. A. I. Oluwaranti/Mr. Julius O. Ogunniyi

HOD's SIGNATURE

TIME ALLOWED: <u>3 HOURS</u>

INSTRUCTIONS:

1. ANSWER **QUESTION ONE (1)** AND ANY **OTHER FOUR (4)**
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE **NOT** ALLOWED TO BORROW ANY WRITING MATERIALS DURING THE EXAMINATION.

Question 1

a). Write a program to print the area of two rectangles having sides (30,50) and (15,28) respectively by creating a class named 'MyRectangle' with a method named 'MyArea' which returns the area, and length and breadth passed as parameters to its constructor. **4 Marks**

b). Add another method named 'MyPerimeter' which returns the perimeter, and length and breadth passed as parameters to its constructor. **3 Marks**

c). Create a class called 'MyCircle' with a method named 'AreaCircle' which returns the area of the circle with a radius as a passed parameter to its constructor. Create an object within 'MyRectangle' class called 'MyObj1' and output the result indicating the radius and the area of the circle. **5 Marks**

Question 2

a). There are core concepts that differentiate object-oriented programming (OOP) languages like JAVA from a non-object-oriented programming language. Explain **six (6)** of such core concepts of OOP. **6 Mark**

b). Write a JAVA program to display numbers from 9 to 2027 using **WHILE... DO** conditional statement. **6 Marks**

Question 3

a). State four (4) examples of primitive data types in JAVA and give one (1) example for each showing the declaration and initialisation with the appropriate value (s). **6 Marks**

b). Write a JAVA program to calculate the average of all the values in a 3 by 5 array M.

Given M=$\begin{pmatrix} 1\,2\,3\,4\,5 \\ 6\,7\,8\,9\,10 \\ 8\,2\,5\,7\,4 \end{pmatrix}$ **6 Marks**

Question 4

a). There are different types of operators use in JAVA program, explain four (4) categories of the operators and also give two examples for each category. **4 Marks**

b). Give one (1) example for each of the operator's categories **4 Marks**

c). Write a JAVA program to display the day of the week (start from Sunday) using a switch statement. **4 Marks**

Question 5

a). State the clear difference between **static** and **public** access modifiers as used in the method declaration. Use appropriate JAVA code snippets to juxtapose your claim. **4 Marks**

b). Adamu has just started learning JAVA programming language. He wrote the JAVA program inside a NOTEPAD and run it on a command prompt. The first program he compiled flags this error:

error:file not found:MyCycle
Usage: javac <options> <source files>
Use - - help for a list of possible options

As a student that has learnt JAVA programming language, write a note to Adamu on the possible cause of the error encountered and recommend to him way forward to solve his problem based on your own experiences from JAVA Programming classes. **4 Marks**

c). Write short note on each of the following as its relate to JAVA and OOP programming languages

    i.   JAVA package

    ii.   JAVA Enterprise Edition (JAVA EE)

    iii.   JAVA Standard Edition (JAVA SE), and

    iv.   JAVA Mobile Edition (JAVA ME).

1 Mark for each =   4 Marks

Question 6

a). Study the JAVA code below and pinpoints

all the errors (if any) in the in it.   **6 Marks**

```
public class MyClass{
  static void checkAge(int age);{
    elseif (age< 18){
      System.out.println("Access denied - You are not old enough!);
    } else {
      System.out.print("Access granted - You are old enough!")
    }

  }

  public static void mains(String[] args) {
    checkAge(20);
  }
```

b). Re-write the correct version of the JAVA program.   **6 Marks**

Question 7

a). Write a short note on each of the following as used in JAVA program,

i. The JAVA Development Kit (JDK)

ii. JAVA Virtual Machine (JVM)

iii. JAVA Runtime Engine (JRE) iv. NetBeans IDE

2 Marks each = 8 Marks

b). JAVA programming language is one of the most secure programming languages. Explain what makes JAVA a secure language among other programming languages. Use an appropriate sketch to demonstrate your point(s).   **4 Marks**