NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2021 EXAMINATIONS

CIT 734: OBJECT ORIENTED TECHNOLOGY   **Credit: 3 units**

TIME ALLOWED: 2½ Hours
INSTRUCTION: Answer Question 1 and any other FOUR (4) Questions

1. (a) Explain the following programming techniques: 6 marks
        i.   Unstructured programming
        ii.   Procedural programming
        iii.   Modular programming
    (b) When can a class be referred to as an Abstract Class?   2 marks
    (c) Write a C++ program to calculate the area of rectangle   7 marks
    (d) Write a java program to print "hello" to screen 10 times   2 marks
    (e) Show the diagrammatic representation of the following relationships   3 marks
        i.   "Is-a" relationship
        ii.   "Part-of "relationship
    (f) List the phases of a Software Life Cycle   2marks

2. (a) The life cycle of a computer-based system exhibits distinct phases. Discuss
                                                                        6 marks
    (b) Write a java function that adds three numbers together   7 marks
    (c) What does it mean for a programming language to be object oriented?   2 marks

3. (a) Explain each line of the code below and state the expected output? $4^1/2$marks

```
public class BasicsDemo {

 public static void main(String} args) {

int sum = 0;

for (int current = 1; current <= 10;

current++) {

sum += current;

}
```

(b) The Data Flow Diagram (DFD) is a diagramming notation that depicts the flow of data through the system and identifies the processes that manipulate the data. Draw a DFD to query a database and print a sorted list of the items retrieved by the database. 7marks

(c) Explain the term method $3^1/2$marks

4. (a) Write a java code to print the product of two numbers x and y   4½ marks

(b) Debug the lines of code below   7marks

```
1: int a=0, b=0, x=0, y=35;

2 : cout << "a:  << a << " b : " << b;

3: cout << " x: "  x << " y: " << y << endl;

4: a = 9;

5: b = 7;

6: y=a+b

7: cout << "a: " << a << " b: " << b;
```

(c) Briefly discuss the following: 3½ marks
   i.   Polymorphism
   ii.   Inheritance
   iii. Encapsulation

5. (a)
   i.   Write a java applet to that draws the string "Hello world!" at location (50,25)
                                                                         3marks

    ii.   Write the HTML code to run the Applet in (i)   5marks

(b) Discuss the two views of Object-Oriented Design 3marks

(c) What does a Java-capable browser do when it encounters an <APPLET> tag?
              4marks

6. (a) A software product is good if it exhibits some qualities, explain the following software product qualities: 8marks
      i.   Correctness
      ii.   Reliability
      iii.   Robustness
      iv.   User Friendliness

(b) With the aid of a diagram, explain the Waterfall Model of Software Life Cycle
              5marks

(C) Good Management is More Important than Good Technology. Explain
              2marks