



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI-ABUJA**  
**FACULTY OF COMPUTING**  
**DEPARTMENT OF COMPUTER SCIENCE**  
**2025\_2 EXAMINATIONS**

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**COURSE CODE: CIT 734**  
**COURSE TITLE: OBJECT-ORIENTED TECHNOLOGY**  
**COURSE CREDIT: 3 UNITS**  
**TIME ALLOWED: 3 HOURS**

**INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER THREE (3) QUESTIONS**

**Question 1:**

- a) With the aid of a diagram, describe the **Waterfall** model of Software Development Life Cycle (SDLC). (6 marks)
- b) Consider the class **Student** depicted in Fig.Q1(a).

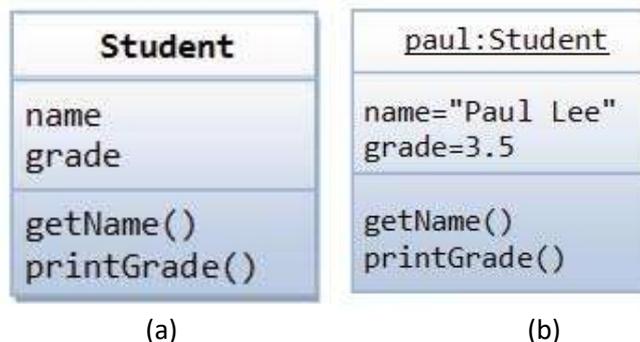


Fig. Q1

- i. Write down the definition for the class **Student** in Java. (6 marks)
  - ii. Write down the Java definition of the instance **paul**. (4 marks)
  - iii. Briefly explain what the contents of each of the three compartments of the class **Student** are alongside their properties. (6 marks)
- c) Enumerate three Object Oriented Programming languages (3 marks)

**Question 2:**

- a. Write short note on the following terms: (9 marks)
  - i. Dataflow Diagram
  - ii. Data Dictionary
  - iii. Mini Specification
- b. Mention three underlying concepts of object-oriented programming and explain them. (6 Marks)

**Question 3:**

- a. How would you describe the following terms? (6 marks)
  - (i) Encapsulation
  - (ii) Polymorphism
  - (iii) Inheritance
- b. How would you explain the phases of a Software Life Cycle? (6 marks)
- c. Mention six (6) Object Oriented and Analysis Design (OOAD) methodologies (3 marks)

**Question 4:**

- a. State four problems with the top-down design approach (4 marks)  
(4 marks)
- b. Explain the following terms: (6 marks)
  - i. Operator Overloading
  - ii. Static Polymorphism
  - iii. Multiple Inheritance
- c. Identify five (5) distinguishing features of the Java programming language.  
(5 marks)

**Question 5:**

- a. Mention **four** guidelines you would adopt in *identifying potential classes* in a software development process. (4 marks)
- b. Distinguish between public, private and protected elements in OOP. (3 marks)
- c. Briefly explain three (3) elements in the documentation of a software product.  
(6 marks)
- d. What is the difference between an integral variable and a floating-point variable?  
(2 marks)

**Question 6:**

- a. Write on each of the following operators in Java, giving examples of usage (8 marks)
  - i. Arithmetic Operators
  - ii. Relational Operator
  - iii. Conditional Operators and
  - iv. Assignment Operators
- b. Briefly, using examples distinguish between **polymorphisms** and **encapsulation**  
(4 marks)
- c. Describe the concept of Object-Oriented Programming. (3 marks)