



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

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).

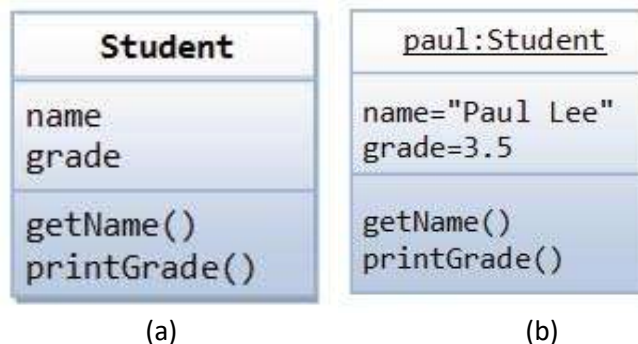


Fig. Q1

- 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)