

Name: _____
 ID: _____
 Section: _____

Daffodil International University
 Fall 2025 – CSE315 Software Engineering
Quiz 3
Total Time: 30 minutes

Question 1 (6 Marks)

A navigation system asks the user to enter the total travel distance. The system only accepts **integer values** within the following condition:

Valid distance range: $5 \text{ km} \leq \text{distance} \leq 2000 \text{ km}$

Inputs containing alphabetic characters, negative signs, or symbols (for example -5, 12a, #50) and all values outside the allowed numeric range must be rejected. If the input is valid, the system stores it; otherwise, it displays an error message.

Tasks (6 marks):

- (a) Perform **Equivalence Class Partitioning** and identify valid and invalid input classes. Provide one test value for each class. **(3 marks)**
 (b) Perform **Boundary Value Analysis** and provide test values based on boundary conditions. **(3 marks)**

Answer Tables

1) Equivalence Class Partitioning (ECP)

Equivalence Class	Description	Test Value	Accept / Reject
Valid Input	Integer between 5 and 2000	500	Accept

2) Boundary Value Analysis (BVA)

Test Value	Reason	Accept / Reject
4	Just below minimum value	Reject

Question 2 (6 Marks)

A software development team is preparing a medium-sized project. The developers have partial experience with similar systems, and while they understand the domain, the project still involves a noticeable amount of technical and design uncertainty. The system's estimated size is **60 KLOC**.

Use the **Basic COCOMO Model** to estimate (i) the required development effort in person-months and (ii) the development time in months. Then assume there are **5 team members** and each team member earns a monthly salary of **15,000 BDT**. **Compute the total project cost** based on the estimated development duration. Clearly show all formulas, steps, and justification used in your estimation.

Question 3 (3 Marks)

Find the annual maintenance cost of a software project where the original size of the software is **55,000 lines of code**, during maintenance **80,000 lines of code are added** and **3,500 lines of code are deleted**, and the total development cost of the original project is **500,000 BDT**. Show all calculations clearly.