COMSATS University Islamabad
Abbottabad Campus
Department of Computer Science

FINAL TERM EXAMINATION SPRING 2025

Section: **BSE 6th B & BCS 6TH A** | Date: 21st July 2025
Subject: Mobile Application Development | Instructor: JAWAD KHAN
Total Time Allowed: 3.00-hours | Max Marks: 60
Student Name: _____ | Registration #_____

Q1: ***Implement*** the following using dart Programming Language. **[CLO-1, C2, Marks: 20]**

a. You are given the following Map values:

```
{'name': 'Laptop', 'price': 1000, 'quantity': 5},
{'name': 'Phone', 'price': 800, 'quantity': 10},
{'name': 'Mobile', 'price': 600, 'quantity': 8},
{'name': 'Computer', 'price': 1100, 'quantity': 7},
{'name': 'Laptop', 'price': 1100, 'quantity': 7},
```

NOTE: You are not required to make any imports, define any class, or define the main function. Just write an answer to exactly what is asked. Put the proper number of questions you are solving.

Perform the following tasks in simple Dart console application.

(a) Write a code to declare a list of the above values. [Marks: 5]

(b) Write code to sort the list with respect to price, and then quantity. [Marks: 5].

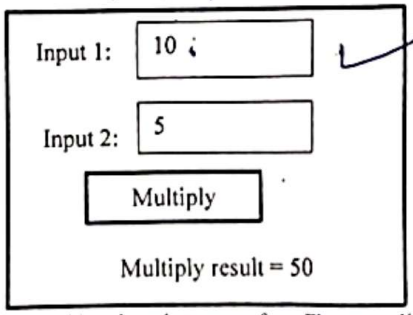
(c) Write code to print all those values whose name is laptop, and quantity is greater than equal to 5. [Marks: 5].

(d) Print the list values in console such that the Quantity column should be replaced with demand with following ranges: [Marks: 5]

Marks Range	Grade
<= 5	Low demand
>=6 and <=8	Medium demand
>=9 and <=10	High demand

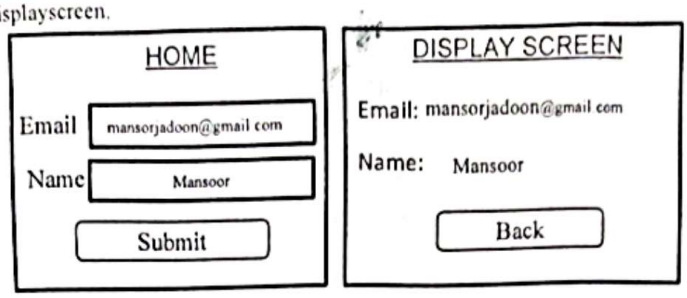
2: ***Implement*** the following programs using Flutter. **[CLO-2, C3, Marks: 20]**

a. Write a complete flutter program of the following scenario. Suppose you have two TextField(), each containing a number, and a button to add the values of the two TextField(). When the button is clicked, the values of the TextField() are mutiply and result should be shown in a Text() widget. **[Marks:10]**



b. Design a widget-based structure for a Flutter application that performs the following tasks: You have two navigation screens as shown below. Name and email are input in the home screen and when the submit button is clicked, the values are passed to display screen (using

RouteSettings) where they are simply displayed. You need to write the widgets of homescreen and displayscreen. [Marks:10]



Q3: ***Implement*** the following in Firebase Database using Flutter. **[CLO-3, C3, Marks: 20]**

a. Design the structure of the Firestore database by identifying the names of collections and subcollections, along with the attributes (fields) that are necessary to support this functionality.
b. Write a method that **inserts** value in a firestore database collection "student".
c. Write a method that **update** value in database against ID = 5 using firestore.
d. Write a method that **Delete** the Document from collection 'student' if student name is "Ahmed".

Given:

- Firestore database object:
  - final FirebaseFirestore db = FirebaseFirestore.instance;
- Reference to the messages collection:
  - var docref = db.collection("messages");
- Use the Firestore API methods like add and get to perform the above operations.
- Note: You are not required to create any class, function, or build method. Simply write the method calls. Include print statements if necessary to display values.

