



UTHM

Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2022/2023**

- COURSE NAME : MOBILE APPLICATION DEVELOPMENT
COURSE CODE : BIT 34103
PROGRAMME CODE : BIT
EXAMINATION DATE : FEBRUARY 2023
DURATION : 3 HOURS
INSTRUCTION : 1. ANSWER ALL QUESTIONS.
2. THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**.
3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK.

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THIS QUESTION PAPER CONSISTS OF TEN (10) PAGES

- Q1** Which of the following statements about Flutter architecture is **FALSE**?
- A. In Flutter, everything is a widget and a complex widget is composed of already existing widgets.
 - B. Interactive features can be incorporated whenever necessary using `GestureDetector` widget.
 - C. The state of a widget can be maintained whenever necessary using `Statefulless` widget.
 - D. Flutter offers layered design so that any layer can be programmed depending on the complexity of the task.
- (2 marks)

- Q2** Which of the following is **TRUE** about the following line of code?

```
button.setOnClickListener({ })
```

- A. It only saves changes in a text field.
 - B. It sets the number of clicks the user presses to run the application.
 - C. It sets the time and date of the run process.
 - D. The system executes the code you write in `setOnClickListener({})` after the user presses the button.
- (2 marks)

- Q3** There are three different action buttons you can add to the Android `AlertDialog` class. Which of the following choices is **FALSE** about Android `AlertDialog` class?
- A. You can add more than one positive button to the same `AlertDialog` class.
 - B. Positive action button is used to accept and continue with the “OK” action.
 - C. Negative action button is used to cancel the action.
 - D. Neutral action button is used when the user does not want to proceed with the action. It appears between the positive and negative buttons. For example, the action might be “Remind me later.”
- (2 marks)

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Q4 You are given two months to develop an application for a retail company to support their business. The application should be able to manage customers data and business transaction in Android and iOS platform. Which is the suitable mobile application development framework for this project?

- i. Android Studio
 - ii. Xcode
 - iii. Flutter
 - iv. Ionic
-
- A. i and ii
 - B. i, ii and iii
 - C. ii, iii and iv
 - D. iii only

(2 marks)

Q5 Select the correct output for the following code snippet:

```
 RaisedButton(onPressed: () {},  
             style: RaisedButton.styleFrom(elevation: 12.0,  
             textStyle: const TextStyle(color: Colors.white)),  
             child: const Text('Press Me'),  
             ),
```

- A. Executed properly and display a button.
- B. Error because `TextStyle` cannot be `const`.
- C. Error because `onPressed` must have parameters.
- D. Error because the `RaisedButton` is deprecated.

(2 marks)

Q6 Examine the following code snippet. How many syntax error(s) would be detected by the compiler?

```
void main() {  
    variable n = 10;  
  
    var res = n => 12 ? "lebih besar daripada 10"; "lebih rendah  
    atau sama dengan 10";  
  
    print(res);  
}
```

- A. None
- B. 1
- C. 2
- D. 3

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(2 marks)

Q7 Which monetization model generate income from advertisers?

- i. Banner
- ii. Sponsorship
- iii. Offer walls
- iv. Subscription

- A. i and ii
- B. i and iii
- C. i, ii and iii
- D. ii, iii and iv

(2 marks)

Q8 If your Android application creates a SQLite database, which of the following is the default directory to save this database file?

- A. /data/data/APP_NAME/databases/DATABASE_FILE
- B. /dataSQL/data/APP_NAME/databases/DATABASE_FILE
- C. /database/data/APP_NAME/databases/DATABASE_FILE_SQLApp
- D. /database/SQLite_Data/APP_NAME/databases/DATABASE_FILE

(2 marks)

Q9 When you create an Android app to capture a user's location, identify two main objects should be utilized from Android SDK?

- A. Link.object and map.object
- B. Google.java and Maps.class
- C. LocationManager and LocationListener
- D. Maps.Google.class and SQLMaps.object

(2 marks)

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Q10 Complete the dependencies and tradeoffs table of performing a unit, widget and integration test as shown in **Table Q10**.

	Unit Test	Widget Test	Integration Test
Confidence	Low	Higher	Highest
Maintenance cost	Low	Higher	Z
Dependencies	X	More	Most
Execution Speed	Quick	Y	Slow

Table Q10

- A. X = Few, Y = Slow, Z = Higher
- B. X = Low, Y = Quick, Z = Most
- C. X = Quick, Y = More, Z = Slow
- D. X = Few, Y = Quick, Z = Highest

(2 marks)

Q11 What will be the output of the following code snippet?

```

main() {
    var temp = [6,8,23,97,10];

    var index = temp.indexOf(8);
    temp.removeAt(index);

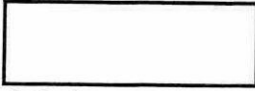
    print(temp);
}
    
```

- A. [8]
- B. [6, 23, 97, 10]
- C. [6,8, 23, 97, 10]
- D. None of the above

(2 marks)

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- Q12** Complete the following code snippet that adds a `Slider` widget to a Flutter app interface. The slider should have 5 values other than the start or the minimum value is 0. The values are 0, 10, 20, 30, 40 and 50.

```
Widget build(BuildContext context) {  
  return Slider(  
    value: _currentSliderValue,  
      
    label: _currentSliderValue.round().toString(),  
    onChanged: (double value) {  
      setState(() {  
        _currentSliderValue = value;  
      });  
    },  
  );  
}
```

- A. min: 0,
max: 10,
divisions: 5,
- B. min: 10,
max: 40,
divisions: 5,
- C. min: 0,
max: 50,
divisions: 5,
- D. min: 10,
max: 50,
divisions: 5,

(2 marks)

- Q13** Select the correct line of code for including telephony service into your Flutter application.

- A. `<uses-permission android:name="android.permission._SMS"/>`
- B. `<uses-permission android:name="android.permission.DELIVER_SMS"/>`
- C. `<uses-permission android:name="android.permission.SEND_SMS"/>`
- D. `<uses-permission android:name="android.permission.SEND_MMS"/>`

(2 marks)

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Q14 Figure Q14 shows a Flutter app interface which uses three tabs to navigate the app content. Which of the following choices is the parent widget for the `TabBar` and `TabBarView` widgets?

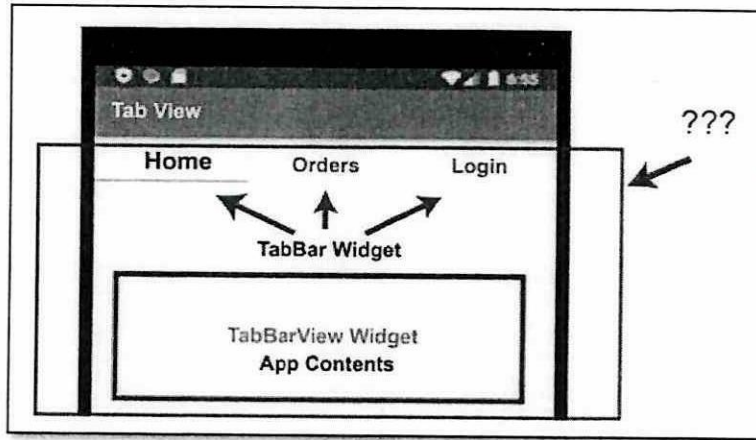


Figure Q14

- A. `DefaultTabController`
- B. `TabScreenSelect`
- C. `TabOptions`
- D. `TableTabSelect`

(2 marks)

Q15 How many child widgets can be added to the `Container` widget?

- A. Two children widgets
- B. Three children widgets
- C. One only child widget
- D. Unlimited children widgets

(2 marks)

Q16 Which of the following statement of subscription is **FALSE**?

- A. Similar concept to freemium.
- B. Users get basic features at no cost.
- C. Users need to pay for gaining an access all of the content.
- D. This model generates predictable, long-term revenue flow for the owner.

(2 marks)

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Q17 Which of the following sensors usually used in location services?

- i. Compass
- ii. Accelerometer
- iii. Orientation
- iv. Gyroscope

- A. i and ii
- B. i, ii and iii
- C. ii, iii and iv
- D. i and iv

(2 marks)

Q18 Which of the following property should you use to add a label, icon, and an inline hint text to the `TextField` widget ?

- A. `SizeBox`
- B. `shrinkWrap: true`
- C. `ListView`
- D. `InputDecoration`

(2 marks)

Q19 What is the best solution for adding an image from your computer hard disk to a Flutter project?

- A. Do configure your code to use an image from a web link only.
- B. Create a new folder (directory) in Flutter file structure, copy the image from your hard disk, paste the image in the folder then configure your Dart file in this Flutter project to use this image file name.
- C. Create a new folder (directory) in Flutter file structure, copy the image from your hard disk, paste this image in the folder, configure your Dart file in this Flutter project to use this image file name, configure your Flutter project `pubspec.yaml` file to use this image folder, then click "`Package get`" at the top of `pubspec.yaml` file.
- D. Click `File` menu in any Flutter IDE, select `Insert`, select `Image`, browse to select the image and then click `Save`.

(2 marks)

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Q20 The following code snippet will generate an error message, "error:line 3 pos 19: type name expected". Choose the correct code to rectify the error.

```
void main() {
    double n = 75.20;
    var num = n is 75.20;
    print(num);
}
```

- A. var num = n is "75.20";
- B. var num = n = "75.20";
- C. var num = n is double;
- D. var num = n = double;

(2 marks)

Q21 **Figure Q21** shows the interface of a simple BMI calculator app that will calculate BMI based on height and weight entered by the user. Draw the widget tree of the interface.



Figure Q21

(10 marks)

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- Q22** Write the full code implementation of `onPressed()` function to execute an action that will be triggered when user clicks on the button as in the code snippet below. Then, it will redirect user to a new page called `SecondPage()`.

```
    ), // Center
    floatingActionButton: FloatingActionButton(
      child: const Text('Click'),
      onPressed: () {},
    ), // FloatingActionButton
  ), // Scaffold
```

(10 marks)

- Q23** Question **Q23(a)** - **Q23(c)** are based on the following scenario.

Over the past few years, scientists have reiterated that being eco-friendly cannot just be a hobby anymore. Thanks to technology, there are now more mobile application that promotes environmental awareness and sustainable living. The application can either be a zero waste shops, energy consumption trackers or food recovery/sharing program. These apps can connect you with like-minded community members who are also on their sustainability journey. Basically these kinds of apps help you do something you were already going to be doing anyways, but more sustainably.

- (a) Design the dashboard/main page interface of **ONE (1)** sustainability mobile application of your choice. (8 marks)
- (b) Suggest the best mobile application development framework for developing the mobile application. Justify your answer. (6 marks)
- (c) Suggest **TWO (2)** external services that is suitable for enhancing the mobile application designed in **Q23(a)**. (6 marks)

- END OF QUESTIONS -

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