



# 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 : BIM 30603  
PROGRAMME CODE : BIM / BIW  
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

**TERBUKA**

THIS QUESTION PAPER CONSISTS OF NINE (9) PAGES

- Q1** In the generic mobile app architecture, the definitions of the data the app uses, the resourcing of that data and the processing of that data for the display is encapsulated in \_\_\_\_\_ layer.
- A. Presentation
  - B. Business
  - C. Data
  - D. External Service
- (1 mark)
- Q2** 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
- (1 mark)
- Q3** 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 *Statefulness* widget.
  - D. Flutter offers layered design so that any layer can be programmed depending on the complexity of the task.
- (1 mark)
- Q4** If your Android application creates an 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.
- (1 mark)

- Q5** 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.”

(1 mark)

- Q6** 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`

(1 mark)

- Q7** This widget is used to set a specific width and/or height between widgets. Which of the following terms is this definition for?

- A. `AppBar`
- B. `SafeArea`
- C. `SizedBox`
- D. `onChanged`

(1 mark)

- Q8** 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)

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- Q9** The following code snippet is to add a slider widget to a Flutter app interface. The divisions property value is 5. What does that mean?

```
Widget build(BuildContext context) {  
  return Slider(  
    value: _currentSliderValue,  
    min: 10,  
    max: 50,  
    divisions: 5,  
    label: _currentSliderValue.round().toString(),  
    onChanged: (double value) {  
      setState(() {  
        _currentSliderValue = value;  
      });  
    },  
  );  
}
```

- A. It means that the slider will have 5 values other than the start, or the minimum value is 0. The values are 0, 10, 20, 30, 40 and 50.
- B. It means that the values of slider will be increased by 5. The values are 0, 5, 10, 15, 20, 25, 30, 35, 40, 45 and 50.
- C. It means that the slider will have 5 values. The values are 0, 10, 20, 30 and 40.
- D. It means that the slider will have only 2 values. The values are 0, and 50.

(2 marks)

- Q10** The following code snippet will generate an error message "error: line 3 pos 19: type name expected". Correct the following 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)

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**Q11** Justify two types of widget that exist in the following Widget Tree.

```
void main(){
  runApp(
    Center(
      child: Text(
        'Hello, World!'
        textDirection: TextDirection.ltr,
      ),
    ),
  );
}
```

- A. Direction, Text
- B. Main, Direction
- C. Center, Text
- D. runApp, Center

(2 marks)

**Q12** What will happen if the following statement is executed?

```
Result = numberOne ~/ numberTwo;
```

- A. numberOne is divided by numberTwo and returns the remainder value.
- B. numberOne is divided by numberTwo and returns the whole number.
- C. numberOne is divided by numberTwo and return the fractional number.
- D. numberOne is divided by numberTwo and returns an integer value.

(2 marks)

**Q13** You are writing the following Dart code in a Flutter app to create three radio buttons to your app. Unfortunately, there are some errors has been detected in this code. How can you rcorrect the error of the code?

```
RadioButtonGroup(
  labelStyle: TextStyle(fontSize: 12.0),
  labels: <String>[
    "Beginner",
    "Intermediate",
    "Expert",
  ],
),
```

- A. Add a square bracket ] to close the labels property.
- B. Flutter apps do not allow you to add radio buttons.
- C. Replace the RadioButtonGroup widget with RadioButton widget.
- D. Replace the square brackets [ ] with braces brackets { }.

(2 marks)

**Q14** Which of the following code snippet will produce the output “Hello World!”?

```
class HelloWorld {
    void sayHello() {
        print("Hello World!");
    }
}
void main() {
    // code snippet here
}
```

- A. 

```
HelloWorld c = new HelloWorld();
c.sayHello();
```
- B. 

```
HelloWorld c = new HelloWorld();
c.sayHello();
print("!");
```
- C. 

```
sayHello();
print("!");
```
- D. 

```
sayHello();
```

(2 marks)

**Q15** 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)

**Q16** 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

(1 mark)

Q17 The `increment++` expression means \_\_\_\_\_.

- A. the expression value is `increment+1`
- B. the expression value is `increment`
- C. the expression value is `increment=1`
- D. the expression value is `increment<1`

(2 marks)

Q18 When you create an Android app to capture a user's location, what 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)

Q19 What is required by an Android app to include a Google map and access the Google Maps servers?

- A. Free Space about 25 MB in local storage.
- B. Google API key.
- C. API level 26 and higher.
- D. All of the above.

(1 mark)

Q20 Which monetization model generate income from advertiser?

- 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

(1 mark)

**Q21** Write code snippet for each requirement below.

- (a) Declare a variable of type `dynamic` and initially assigning it a value of type `String`. Then print the variable (assume any appropriate string).  
(2 marks)
- (b) Declare a variable of type `Boolean` and initially assigning it to `False`. Then print the variable.  
(2 marks)
- (c) Declare and initialize two variables that illustrate the use of type inference.  
(2 marks)
- (d) Declare and initialize a list having four literals of any data type. Then print the second element in the list.  
(2 marks)
- (e) Declare a new list having the same data type as in **Q21(d)** and initialize it with two literals. Add all literals from the new list with the list in **Q21(d)**.  
(2 marks)

**Q22** Question **Q22(a)** and **Q22(b)** are based on the following scenario.

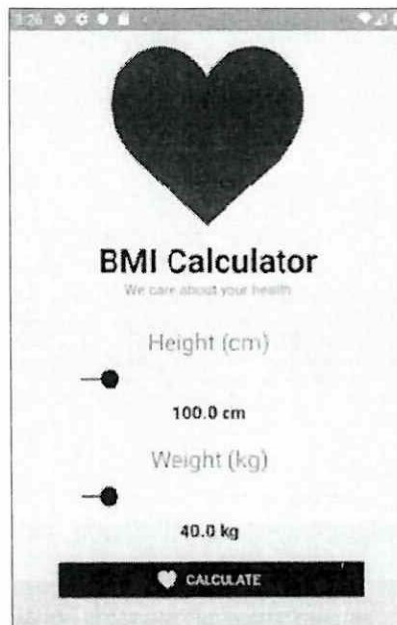
Assume that you want to develop a new mobile application named `KedaiKita` for your company, as an additional to the web-based application that is already in place. `KedaiKita` app is a marketplace for sellers and buyers to sell and buy computer hardware and software.

- (a) Discuss **TWO (2)** benefits that the new application will bring to the business with appropriate examples.  
(4 marks)
- (b) Elaborate **TWO (2)** most suitable monetization strategies for the mobile application.  
(6 marks)



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

Almost half of adult residents in Putrajaya, or 45.8 per cent, are obese, with the administrative capital having the highest adult obesity rate in Malaysia. As a part of Ministry of Health's (MOH) "Trim & Fit" weight management programme at workplace settings for civil servants, ARoMA Focus Group is required to develop an application that promotes a healthy life.



**Figure Q23(a)**

- (a) Draw the widget tree for the interface shown in **Figure Q23(a)**. (5 marks)
- (b) Suggest **TWO (2)** external application services suitable for enhancing the mobile application. (10 marks)
- (c) Write the code to display a message after the user pressed the Calculate button, based on the following conditions in **Figure Q23(b)**.

```

BMI < 18.5 : Underweight
18.5 < BMI < 25 : Normal
25 < BMI <= 30: Overweight
BMI > 30 : Obese
    
```

**Figure Q23(b)**

(15 marks)

- END OF QUESTIONS -

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