



UNIVERSITY EXAMINATIONS

**EXAMINATION FOR SEPTEMBER/DECEMBER 2019/2020 FOR BACHELOR OF
SCIENCE IN COMPUTER SCIENCE AND BACHELOR OF BUSINESS
INFORMATION TECHNOLOGY**

COURSE CODE: RCS 307 COURSE TITLE: EVENT DRIVEN PROGRAMMING

DATE _____

TIME: 2 HOURS

GENERAL INSTRUCTIONS:

Students are NOT permitted to write on the examination paper during examination time.

This is a closed book examination. Text book/Reference books/notes are not permitted.

SPECIAL INSTRUCTIONS:

This examination paper consists Questions in Section A followed by section B.

Answer **Question 1 and any Other Two** questions.

QUESTIONS in ALL Sections should be answered in answer booklet(s).

- 1. PLEASE start the answer to EACH question on a NEW PAGE.**
- 2. Keep your phone(s) switched off at the front of the examination room.**
- 3. Keep ALL bags and caps at the front of the examination room and DO NOT refer to ANY unauthorized material before or during the course of the examination.**
- 4. ALWAYS show your working.**
- 5. Marks indicated in parenthesis i.e. () will be awarded for clear and logical answers.**
- 6. Write your REGISTRATION No. clearly on the answer booklet(s).**
- 7. For the Questions, write the number of the question on the answer booklet(s) in the order you answered them.**
- 8. DO NOT use your PHONE as a CALCULATOR.**
- 9. YOU are ONLY ALLOWED to leave the exam room 30minutes to the end of the Exam.**
- 10. DO NOT write on the QUESTION PAPER. Use the back of your BOOKLET for any calculations or rough work.**

SECTION A [Compulsory]

Question 1 [30 Marks]

(a) Differentiate between event driven programming and procedural programming.

[4 Marks]

(b) Program flowcharts and pseudocode are tools used for program design. Draw a flow chart to solve the general quadratic equation $x^2+bx+c = 0$.

Hint:

- $d = \text{sqrt}(b*b-4*a*c)$
- $x_1 = (-b+d)/2*a$
- $x_2 = (-b-d)/2*a$

[8 Marks]

(c) Explain the use of the following sections of the Inspector Panel.

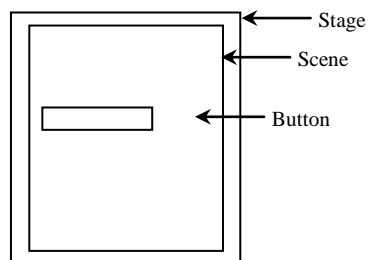
- (i) Properties
- (ii) Layout
- (iii) Code

[6 Marks]

(d) Briefly describe the 5 stages of a generic software development life cycle.

[5 Marks]

(e) Describe each of the following components that make up the basic JavaFx structure.

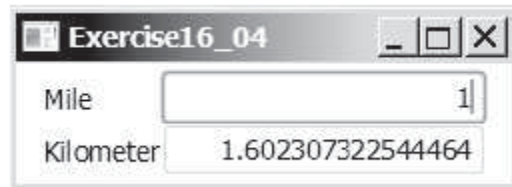


[7 Marks]

SECTION B (Answer Any Two questions)

Question 2 [15 Marks]

- (a) Write a program that converts miles and kilometers, as shown in Figure below. If you enter a value in the Mile text field and press the *Enter* key, the corresponding kilometer measurement is displayed in the Kilometer text field. Likewise, if you enter a value in the Kilometer textfield and press the *Enter* key, the corresponding miles is displayed in the Mile text field.



[9 Marks]

- (b) Given the JavaFx code below,

```
1 import javafx.application.Application;
2 import javafx.scene.Scene;
3 import javafx.scene.control.Button;
4 import javafx.stage.Stage;
5
6 public class MyJavaFX extends Application {
7     @Override // Override the start method in the Application class
8     public void start(Stage primaryStage) {
9         // Create a button and place it in the scene
10        Button btOK = new Button("OK");
11        Scene scene = new Scene(btOK, 200, 250);
12        primaryStage.setTitle("MyJavaFX"); // Set the stage title
13        primaryStage.setScene(scene); // Place the scene in the stage
14        primaryStage.show(); // Display the stage
15    }
16
17    /**
18     * The main method is only needed for the IDE with limited
19     * JavaFX support. Not needed for running from the command line.
20     */
21    public static void main(String[] args) {
22        launch(args);
23    }
24 }
```

Explain the purpose of the code in lines:

- (i) 6
- (ii) 8
- (iii) 10
- (iv) 11
- (v) 13
- (vi) 14

[6 Marks]

Question 3 [15 Marks]

(a) JavaFX provides a complete API with a rich set of classes and interfaces to build GUI applications with rich graphics. In this context explain the use of the following important packages of this API:

- (i) javafx.animation
- (ii) javafx.css
- (iii) javafx.event
- (iv) javafx.stage
- (v) javafx.scene

[5 Marks]

(b) For each of the following controls, describe a scenario where you would use them and write some sample code to create each.

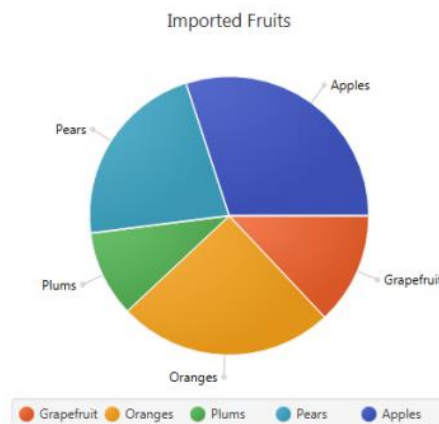
- (i) Radio Button
- (ii) Checkbox
- (iii) Password Field
- (iv) Combo Box
- (v) Text Field

[10 Marks]

Question 4 [15 Marks]

(a) To create a pie chart in your JavaFX application, at a minimum, you must instantiate the PieChart class, define the data, assign the data items to the PieChart object, and add the chart to the application. Given the data below, write sample code that would render the pie chart below.

- ("Grapefruit", 13)
- ("Oranges", 25)
- ("Plums", 10)
- ("Pears", 22)
- ("Apples", 30)



[9 Marks]

- (b) Media (video and audio) is essential in developing rich Internet applications. JavaFX provides the Media, MediaPlayer, and MediaView classes for working with media. Explain the role that each of the 3 classes play in developing Rich Internet Applications (RIA).

[6 Marks]

Question 5 [15 Marks]

- (a) Describe the use of the following new user interface (UI) features available with JavaFX SDK 8.0.

- (i) Tree Table View
- (ii) Date Picker
- (iii) JavaFX UI Controls on the Embedded Platforms

[6 Marks]

- (b) The Scene Builder Main Window has the following parts. Briefly explain the use of each.

- (i) Menu Bar
- (ii) Library Panel
- (iii) Content Panel
- (iv) Document Panel
- (v) Selection Bar
- (vi) Inspector Panel

[9 Marks]