(Knowledge for Development)

KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

MAINEXAMINATIONS
THIRD YEAR SEMESTER TWO EXAMINATIONS

FOR THE DEGREE OF
BACHELOR OF SCIENCE
(COMPUTER SCIENCE)

COURSE CODE : **CSC 364E**

COURSE TITLE : **ADVANCED PROGRAMMING WITH JAVA**

DATE: 6/9/2022   TIME: 2.00 P.M – 4.00 P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

a) Define the following terms.   **[2 Marks]**

    i.   Scene Graph

    ii. GWT

b) The need for JavaFX is growing by the day, discuss reasons why this is so.

    [4 Marks]

c) Outline a preview of JavaFX history.   **[4 Marks]**

d) Discuss the role of the following software in JavaFX applications development.

    [2 Marks]

    i.   JDK

    ii. IDE

e) JavaFX provides a complete API with a rich set of classes and interfaces to build GUI applications with rich graphics. Describe four important packages in the API.

    [2 Marks]

f) Write a JavaFX program that displays "Welcome to **JavaFX Application**" using a Text Node, describe the components of the program.   **[4 Marks]**

g) Using a well labeled diagram, describe types of nodes in JavaFx.   **[6 Marks]**

h) A node is a graphical object, giving examples, discuss the following nodes

    [6 Marks]

    i.   UI Controls

    ii. Containers

    iii. Media Elements

QUESTION TWO [20 MARKS]

a) Differentiate between the following terms   **[4 Marks]**

    i.   Decorated Stage and Undecorated Stage

    ii. Utility Stage and Unified Stage

b) Discuss the life cycle of JavaFX application.   **[2 Marks]**

c) Write a JavaFX application that display text "**This a Line Node**" and then draws a line below it.   **[6 Marks]**

d) 2D shape is a geometrical figure that can be drawn on the XY plane. Using examples, discuss the process of creating a 2D Shape.   **[4 Marks]**

e) Path class is a powerful tool in creating complex 2D shapes. Write a program that creates the following figure. **[4 Marks]**

(232, 52)

(108, 71)

(321, 161)

(126, 232)

(269, 250)
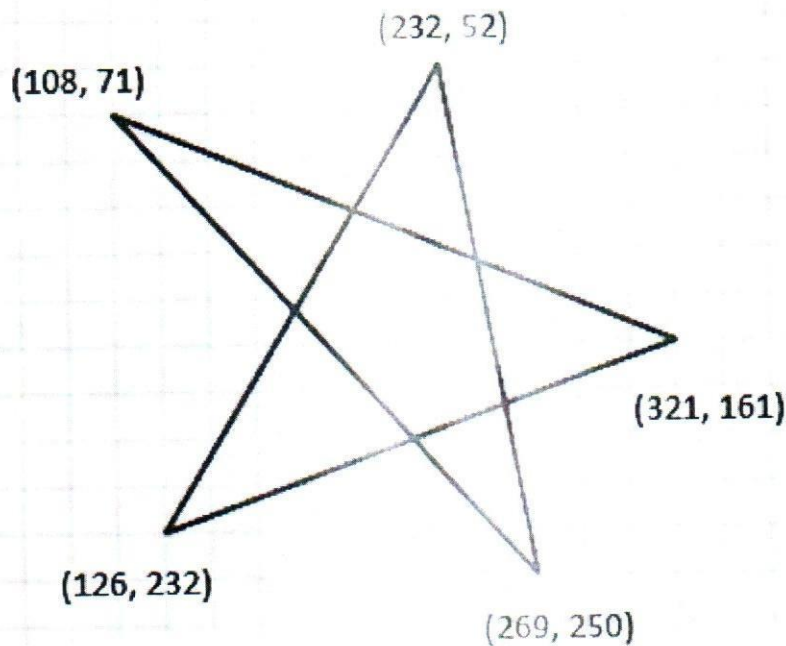
QUESTION THREE [20 MARKS]

a) Define the following terms **[2 Marks]**
   i. Text
   ii. Effects

b) Using the function setFont(), explain how you can apply various font styles in JavaFX. **[4 Marks]**

c) Write JavaFX program that display text and apply stroke and color as well as various decorations. **[6 Marks]**

d) Describe the procedure of applying effects on a given node. **[4 Marks]**

e) Write a JavaFX program that will apply glow effect on a given Node. **[4 Marks]**

QUESTION FOUR [20 MARKS]

a) Define the following terms   **[4 Marks]**

    i. Transformation

    ii. Animations

b) Write a JavaFX application that applies Rotation, Scaling and Translation on a node of your choice.   **[6 Marks]**

c) Discuss the procedure of applying animations on a node.   **[4 Marks]**

d) Write a JavaFX application that animates a bouncing ball.   **[6 Marks]**

QUESTION FIVE [20 MARKS]

a) Differentiate between the following.   **[4 Marks]**

    i. Foreground and Background events

    ii. Culling Face and Draw Mode

b) JavaFX events have three components, discuss these components using appropriate examples.   **[4 Marks]**

c) Discuss the process of handling events.   **[4 Marks]**

d) Write a JavaFX changes the background of the stage when the button is clicked.   **[4 Marks]**

e) Write a JavaFX application that displays a Cylinder of your choice.   **[4 Marks]**