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(Knowledge for Development)

KIBABII UNIVERSITY

(KIBU)

**UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATIONS
THIRD YEAR SEMESTER TWO EXAMINATIONS**

**FOR THE DEGREE OF
(COMPUTER SCIENCE)**

COURSE CODE : CSC 364E
**COURSE TITLE : ADVANCED PROGRAMMING
WITH JAVA**

DATE: 08/10/2021 TIME: 09.00 A.M - 11.00 A.M

INSTRUCTIONS TO CANDIDATES

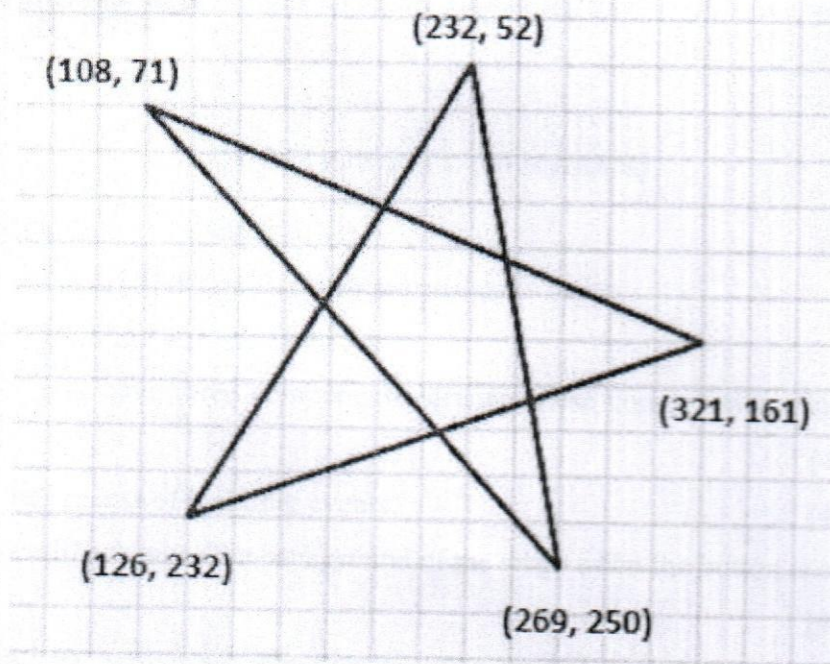
ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

- a) Define the following terms. [2 Marks]
- i. Rich Internet Applications
 - ii. JavaFX
- b) JavaFX is said to be superior in graphical user interface design compared to traditional java, justify this claim. [4 Marks]
- c) Discuss four features of JavaFX. [4 Marks]
- d) Discuss two main software needed while preparing to develop JavaFX applications [2 Marks]
- 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, discuss the architecture of JavaFX. [6 Marks]
- h) Describe the following components of JavaFX application. [6 Marks]
- i. Stage
 - ii. Scene
 - iii. Node

QUESTION TWO [20 MARKS]

- a) Differentiate between the following terms [4 Marks]
- i. Root Node and Parent Node
 - ii. Group Node and Region Node
- b) Discuss the life cycle of JavaFX application. [3 Marks]
- c) Write a JavaFX application that draws a straight line and display text just before the line. [5 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]



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]**