PAN AFRICA CHRISTIAN UNIVERSITY

BACHELOR OF SCIENCE INFORMATION TECHNOLOGY AND BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

END OF SEMESTER EXAMINATION

DEPARTMENT:	**COMPUTING AND INFORMATION TECHNOLOGY**
COURSE CODE:	**BSIT302**
COURSE TITLE:	**OBJECT-ORIENTED PROGRAMMING II**
CAMPUS:	**ROYSAMBU**
EXAM DATE:	**TUESDAY 28TH JULY, 2026**
TIME:	**3:00PM -6:00PM**

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other Three questions in Section **B.**
- Write only your **student number** on the answer booklet provided.

SECTION A: (Answer ALL questions in this section)

Question One (15 marks) Compulsory

a) Define the following terms as used in Object Oriented Programming: **[3 Marks]**
   i. Class
   ii. Polymorphism
   iii. Encapsulation

b) An object has unique identity, state and behavior. Discuss **[3 Marks]**

c) Java is both a compiled and interpreted language. Explain **[2 Marks]**

d) State two advantages of using Swing over AWT. **[2 Marks]**

e) As part of your job interview, you have been asked to develop a java GUI game for preschool children.to play the game, a child is supposed to click on a button with a given color name, and a panel at the center of the game changes its color to that written of the button. The game has five colors.

Required: Sketch the interface GUI of the game **[5 Marks]**

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SECTION B: (Answer any THREE (3) questions in this section)

Question Two (15 Marks)

a) Show the syntax of declaring the following in java.

i. Class
ii. Method
iii. Object **[6 Marks]**

b) With the use of Java code fragments, implement the following features of object-oriented paradigm:

i. A class to hold student details and calculate student marks. **[3 Marks]**
ii. A statement to instantiate TWO objects of the class defined in (i) above and initiate them with appropriate values. **[3 Marks]**

c) Explain two types of event in Java Swing. **[3 Marks]**

Question Three (15 Marks)

a) Give the syntax of drawImage() and copyArea() methods. **[3 Marks]**

b) Consider the code below and answer the questions that follow.

```
1  import javax.swing.*;
2  public class PushMe extends JFrame{
3  public PushMe(){
4  JFrame myJFrame = new JFrame("My Swing window");
5  JButton button = new JButton("Push me!");
6  myJFrame.getContentPane().add(button);
7  myJFrame.pack();
8  myJFrame.setVisible(true);
9  }// end of constructor
10 public static void main (String[] args) {
11 // create a single PushMe object
12 PushMe myPushMe = new PushMe();
13 }; // end of main
14 };// end of PushMe
```

Required:

i) Sketch the likely output for the program. **[3 Marks]**

ii) Edit the above code to include the following:

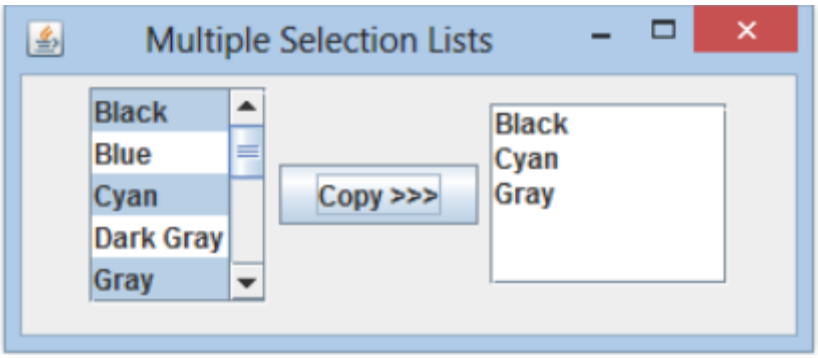
a. Add a label with text "start" displayed on it, next to the button. **[2 Marks]**
b. Add functionality such that, when the button is clicked, the label displays the message "clicked". **[7 Marks]**

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Question Four (15 Marks)

a) Differentiate between method overloading and method overriding. **[3 Marks]**

b) Write a Java GUI application of the figure shown below that uses multi-selection lists to copy items from one list to another. **[12 Marks]**



Question Five (15 Marks)

a) Define the term Layout Manager. **[1 Mark]**
b) Distinguish between the following layout managers as used in Java Swing;
i. FlowLayout and BorderLayout **[2 Marks]**
ii. GridLayout and BoxLayout **[2 Marks]**
b) Explain five Java Swing components. **[10 Marks]**

Question Six (15 Marks)

a) State three features of Java Swing. **[3 Marks]**

b) Explain the term multi-threading as applied in Java. **[2 Marks]**

c) With an aid of a diagram, describe the stages of the life cycle of a thread. **[10 Marks]**

END

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