

FEDERAL UNIVERSITY OF TECHNOLOGY MINNA
SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY
DEPARTMENT OF INFORMATION & MEDIA TECHNOLOGY
FIRST SEMESTER EXAMINATION, 2013/2014 ACADEMIC SESSION

Course Code: *IMT 512*
Credit Unit: 3

Course Title: *Advanced Java Programming*
Time Allowed: *2 Hours.*

Instruction: Answer only **four (4)** questions.

Question 1

(a) The laborious task of setting up and designing graphical user interface with Swing components can be streamlined into basic steps for coding simplicity. Write a template that summarizes the steps for JFrame with relevant methods. (6 marks)

(b) Describe the Java platforms listed below. (6 marks)

- i. JavaTV ii. Java Micro Edition iii. JavaCard

(c) Swing application framework consists of many components which can be classified into three (3) broad categories. Explain these categories with the aid of a diagram. (3 marks)

Question 2

(a) Explain the following Layout managers: (4 marks)

- i. BorderLayout ii. CardLayout iii. FlowLayout iv. GridLayout

Use the snippet below to answer questions 2(b) and 2(c).

```
private class ImtHandler implements ActionListener{  
    @Override  
    public void actionPerformed(ActionEvent ae) {  
        String actionTaken = ae.getActionCommand();  
        If (actionTaken.equals("Add")){  
            int result = Integer.parseInt("4") * Integer.parseInt("7");  
            IAnswerValue.setText(Integer.toString(result));  
        }  
        else if (actionTaken.equals("Exit")){  
            System.exit(0);  
        }  
        else {  
            }  
    }
```

(b) Explain the meaning of each underlined statement. (7 marks)

(c) i. Suppose **IAnswerValue** is an instance of JLabel, what will be its possible value when a user clicks a JButton that registered for ImtHandler and with its action command set to actionCommand("Add"). (2 marks)

ii. What will be output from the snippet when a user clicks another JButton that registered for ImtHandler with action command set to ("Addition")? Give reason to support answer. (2 marks)

Question 3

(a) The snippet below contains some errors, write error free version of the snippet. (5 marks)

```
public static void main(String[] args) {  
    Swingutilities.invokeLater( new runnable(){  
        public void run(){  
            new JFrameSetup()  
        }  
    }  
}
```

(b) Describe five (5) core components of Java Enterprise Edition. (5 marks)

(c) Your project team wants to develop a web application for a commercial bank having a branch in each state of Nigeria. Explain five (5) reasons to convince your Software Project Manager why JavaServer Page should be preferred over other Common Gateway Interfaces like Perl. (5marks)

Question 4

Write a complete JavaServer Page to display information contained on webpage shown in Figure 1. The date should be auto generated using appropriate Java class and JavaServer Page expression tag. (5 marks)



Figure 1

(b) Describe the JavaServer Page implicit objects listed below. (5 marks)

i. request ii. response iii. out iv. session v. application

(c) What are the main features of JavaServer Page? (5 marks)

Question 5

(a) Write a JSP web page that receives contents of two textboxes from another webpage. The name attributes of the textboxes are *firNum* and *secNum*. The content of the textboxes are expected to be real numbers. Your JSP should compute the average of the numbers received and display the result. The logic to compute the average should be encapsulated within a method and your code should call this method when necessary. (7 marks)

(b) Explain the following constructs with relevant JavaServer Page syntax: (6 mark each)

i. Declaration ii. Expression iii. Scriptlet iv. Comment

(c) Explain JavaServer Page container. (2 marks)

Question 6

(a) Explain JDBC and its major use(s) in Java programs. (3 marks)

(b) Programmers are encouraged to follow some basic steps when using JDBC in their programs. Describe each of these steps in chronological order. (7 marks)

(c) (i) Suppose the JSTL tag below is needed to connect to a MySQL (version 5) database called *imt512Exam* expecting connection at default port, what should be the values of #### attributes? (3 marks)

`<sql:#### driver="####" url="####" user="root" password="" var="myDataSource"/>`

(ii) Replace #### in the tag below and rewrite the tag with necessary Structure Query Language that will retrieve only course **code** and course **title** from each record of a table called **course** using table description shown in Figure 2 as guide. (2 marks)

`<sql:query dataSource="{myDataSource}" var="allResults" sql="####"/>`

mysql> desc course						
->						
Field	Type	Null	Key	Default	Extra	
code	varchar(6)	NO	PRI	NULL		
title	varchar(25)	YES		NULL		
unit	int(11)	YES		NULL		
rows in set (0.01 sec)						

Figure 1

Best of Luck.