

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Programming in Java

Semester - Fall

Year : 2013
Full Marks: 100
Pass Marks: 45
Time : 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

- a) How java is more secure than other programming language? Explain. 5
b) Write a java program to generate the following triangle using for loop. 5

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0 1
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0 1 0 1

- c) Explain the uses of super and this keyword with suitable example. 5

- a) What are the significant uses of interface? Explain how it is implemented in java. 8
b) Write a function that takes an array of integers as an argument and returns sum of even numbers in that array. 7
a) Explain the user defined Exceptions with suitable java code. 8
b) What is user define package? Illustrate the process of defining and using define package with suitable example. 7
a) What is an Applet? Write an applet program to play an audio file. The name of audio file is supplied from HTML tag. 8
b) What is an event? Briefly explain the models available for event handling. 7
a) Write down the significant uses of URL and URL Connection classes. 7
b) What is the difference between TCP/IP Programming & datagram Programming? Briefly explain the Classes and Methods that are used to create a TCP/IP Server application. 8
a) What are the steps involved for making a connection with a database. Write a Java program to extract and display the information in console from ABC table of Ms-access with suitable values. The ABC table has AAA and BBB fields. 8

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श्रीम देवानगर संस्कृत एवं विज्ञान कालेज
बालकुमारी, ललितपुर ९८४९५९९५९२
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- b) Define JDBC and ODBC. Briefly explain the different types of JDBC driver.
7. Write short notes on any two:
- Dynamic Dispatching
 - Layout Management
 - Graphics object*

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POKHARA UNIVERSITY

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Attempt all the questions.

- a) Discuss the features of Java Programming. Why Java is popular than C/C++? 8
- b) What do you mean by interface? How do you implement interface in java. Explain with example program. 7
- a) Explain the following terms with suitable program. 8
- Access Protection Mechanism
 - Inner classes
- b) Explain various stream classes available in Java. Write a program using any stream class for writing text to a file. 7
- a) What does security restriction means in applet? List out the attributes of applet tag and explain them. 8
- b) Write a program to create a frame in swing. The frame should contain three text fields with labels arg1, arg2 and result respectively, a menu called file with sub menus add, subtract and close. 7
- a) Explain the Layout Manager in detail. Write a program to change the font of text in textfield of the Frame. The frame contains 3 checkboxes named bold, italic and plain. 8
- b) Write a simple GUI addition application that used two input dialogs to obtain integers from the user and a message dialog to display the sum. 7
- a) What is socket? Write a program to find local IP Address & Hostname of the system. 8
- b) Explain URL and URL connection class with suitable program. 7
- c) Write a program to connect to a database using JDBC. Assume that database name is test Db and it has table named employee with 2 records. 8

- b) Explain different types of JDBC drives.
7. Write short notes on: (Any two)
- Casting abstract class
 - Life Cycle of Applet
 - Frame Layout.

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- a) Explain how java is platform independent. Write a java program to print "Hello Nepal" in console. 7
- b) What is inheritance? Explain it with suitable example. 8
- a) Write a java program to demonstrate runtime polymorphism via method overriding. Write the following classes: Animal as a base class, Cat (derived class of Animal) and Cow (derived class of Animal) .Write a method eat () in Animal class and override that method in the derived classes. 8
- b) What are exceptions? Write a program to input an integer from keyboard and print it on the console. Fire an exception if the input is other than integer using try and catch blocks. 7
- a) Write down the steps for converting java application to java applet. 5
- b) Write an applet program with three text fields with the following names: "number1", 'number2" and "result". When the user clicks a "sum" button then the sum of the two number in "number1" and "number2" should be displayed in the text field named "result". 5
- c) What do you mean by Border Layout? Give an example program. 5
- a) Write a following program using Frame. 8
 - i. It should have three Text Field and one Button
 - ii. It should accept 2 numbers
 - iii. When user clicks the button, it should calculate the sub of two number entered in two Text Field and display the result in third Text Field.
- b) Write a program to display "Pokhara University" inside an ellipse. Note that the string should be in serif font with size 20 and style bold. 7

5. a) Define Socket programming and its usage in java.
b) What do you mean by URL? Provide a simple program using the URL class to show URL processing in java.
6. a) What do you mean by JDBC Drivers? Write short notes about :
i. JDBC-ODBC Bridge
ii. Java Native Driver
b) Write the steps to insert data in following table
Table name : student
- | Column | Data Type |
|--------|-----------|
| Id | number |
| Name | varchar |
| Roll | number |
7. Write short notes on: (Any two)
a) Reflection
b) Data Types
c) Closable Frames.

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Attempt all the questions.

What do you mean by Java System Overview? Explain why Java program are known as portable and architecture neutral. 7

Differentiate between package and interface in Java. Provide examples for each of them. 8

Implement an abstract class named Person and two subclasses named Student and Employee in Java. A person has a name, address, phone number and e-mail address. A student has a class status (freshman, sophomore, junior or senior). Define the status as a constant. An employee has an office, salary and date-hired. Implement the above classes in Java. Provide Constructors for classes to initialize private variables. Override the to String method in each class to display the class name and the person's name. Write an application to create objects of type Student and Employee and print the person's name and the class name of the objects. 8

b) Why do we need to serialize an object? Write a program to read numbers from the console using the Input Stream. Also, apply the method of object serialization in your program. 7

a) How can a HTML file pass data to an applet? Explain with relevant code tags. 5

b) Write an applet program with three textfields with the following names: 5

"number1", "number2" and "result". When the user clicks a "sum" button then the sum of the two numbers in "number1" and "number2" should be displayed in the text field named "result".

c) Differentiate between Gridbag Layout and Grid Layout. 5

4. a) What are heavyweight components in Java? Are there any alternatives to those heavyweight components? Provide a comparative illustration.
- b) Write a program to draw a Bar Char of Number of Students giving exam for Java, C and C++.
5. a) Differentiate between URL and URL Connection class with relevant examples.
- b) Discuss the process of creation of server and client sockets with Exceptions handled explicitly with a suitable example.
6. a) What do you mean by JDBC Drivers? Write short notes about:
- i. JDBC-ODBC Bridge.
 - ii. Java native Driver.
- b) Write a simple Java Program to connect ms access database and insert data in the table named "Student" which have four fields named "id", "name", "address", "DOB", and "Class".
7. Write short notes on: (Any two)
- a) Dialog Box.
 - b) Closable Frames.
 - c) Inner Class.

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POKHARA UNIVERSITY

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Attempt all the questions.

1. a) Is JVM is machine independent? Explain the use of JVM. How JVM makes Java machine independent. 8
- b) Why is multiple inheritance not supported in Java. Provide a simple code example to support your answer. 7
2. a) What is reflection? Why do we need reflection? Explain with sample code 7
- b) How can you create your own exception in Java? Explain with program. 8
3. a) Discuss about the Sandbox Security model with regard to Java Applet. 5
- b) Explain how to display a picture in an applet. 5
- c) Differentiate between GridBag Layout and Grid Layout. 5
4. a) What is the difference between AWT and Swing package in Java? Write a sample code for creating a closable frame in the front and centre of your desktop. 8
- b) Write a program to draw a Bar Char of the total number of students appearing exam in Java. Also, provide Bar Chart for number of male and female students. 7
- Hint: Each Bar can be drawn using drawRect() and fillRect() method.
5. a) What is an URL. Write a Java program for reading contents in a given URL. 7
- b) Write a client program which connects with server running at port 5000 and send "I am client" message to server and also print received message from server in console. (Assume TCP/IP communication) 8
6. a) Differentiate between simple statements and prepared statements. Provide an example to illustrate their differences. 8
- b) Write a simple Java Program to connect database and read data in the table named "Student" which have four fields named "id", "name", "address", "DOB", and "Class". Assuming the "id" field as simple number, display the data of the students with id less than 100. 7
7. Write short notes on: (Any two) 2×5
 - a) JIT compile
 - b) Repaint method
 - c) Inner Class

POKHARA UNIVERSITY

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Attempt all the questions.

1. a) How does Java support re-usability? Provide examples. 7
b) Discuss about the concept of instance variable hiding in Java. Illustrate with a code example. 8
2. a) Make a class Human with a name and age. Make a class Employee inherit from Human. Add instance variable salary of type double. Supply a method showData() that prints the Employee's name, age, and salary. Make a class Manager inherit from Employee. Supply appropriate showData() methods for all classes. Provide a test program that tests these classes and methods. 8
3. a) Why is exception handling essential? Differentiate between checked and unchecked exceptions with relevant examples. 2+5
b) Discuss about the life cycle of an Applet. 5
b) Write an Applet program to illustrate the message sharing between HTML and Applets. 5
c) Differentiate between Panel and Frame. 5
4. a) c) Write a program to generate a Frame with two buttons "BLACK" and "BLUE". When a button is clicked it should change the background color of the Frame to respective color. 8
b) Write a Java Program to draw a 2D rectangle in green color. Next draw the flag of Nepal inside the rectangle. Write a string "MY NEPAL" below the rectangle. 7
5. a) What is a socket? Differentiate between datagram and stream communication. 7
b) Write the steps to create a client server program. Provide code snippet to for each steps. 8

6. a) What is a ResultSetMetadata. Provide a simple example code to illustrate its usage.
b) Discuss about the different types of database drivers
7. Write short notes on: (Any two)
a) Assignment vs. initialization
b) Closable JFrame
c) Runtime Polymorphism in Java

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Attempt all the questions.

1. a) Define java. Write a program to print "Hello Java" in a console. 8
b) Define Polymorphism. How should we implement polymorphism in java? Explain with Example. 7
2. a) What is interface? Define with Example. 8
b) Create a class MyClass in a package MyPack. Import newly created class MyClass from IpmClass. 7
3. a) What is the usage of exception handling? Define with example. 8
b) Create a program to write "Hello World" in a file abc.txt. 7
4. a) Define Applet life cycle. 8
b) What is Frame? Create a frame with following attributes:
 Height = 400
 Width = 400
 Title = My Frame 7
5. a) Create a Frame with one button and onetextfield, when user clicks on the button the text entered on textfield should be changed to uppercase. 8
b) Explain Event Handling with various types of event available on java. 7
6. a) Define Socket Programming with example. 8
b) Why JDBC is required in java. Explain the role of JDBC Driver. 7
 2×5
7. Write short notes on: (Any two)
a) Inheritance
b) URL
c) Java Virtual Machine
d) ResultSet

सुमार सेवागरी सम्पादकीय एवं प्रकाशकीय संस्था
बालदुरामी, ललितपुर, ४५५९९९९
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POKHARA UNIVERSITY

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Attempt all the questions.

1. a) Justify the statement," Java is designed for distributed application". Explain the different types of Java variables. 7
- b) Explain with example: static block, static variable and static method. Why main method is always static and public in Java? 8
2. a) How can you achieve multiple inheritance in java? Explain with a suitable program. 7
- b) What are the main uses of super, finalize and this keyword? Explain how a package is created and accessed while developing an application in Java. 8
3. a) Write a program to store object of a class Student into a file "student.dat" also read the objects from same file and display the state of objects on the screen. Handle possible exceptions. 7
- b) Differentiate error with exception. Write a program to create your own exception class in java. 8
4. a) Explain Applet Architecture. How can you convert applet to application? Explain with suitable example. 7
- b) How Event is handled in Java? Write a Java program to create a swing application with 3 buttons representing your favourite colors. When a button is clicked, the background color must change to the corresponding color. 8
5. a) Differentiate between GridLayout and GridBagLayout. Write a program to show the use of BorderLayout. 7
- b) What is GUI programming? Write a program to draw Nepali flag using graphics. 8
6. a) What is Java URL processing? Demonstrate URLConnection class 7

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- method with suitable example program.
- b) What are the different types of JDBC statements available? Explain with example.
7. Write short notes on: (Any two)
- a) Socket Programming in Java
 - b) JDBC Driver types
 - c) Reflection in Java

- 1. a) Define
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- f) What is
g) Write short
h) a) JRE
b) Event h
c) Result S

POKHARA UNIVERSITY

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Attempt all the questions.

1. a) Define Java as Platform Independent Programming Language. 7
b) What is constructor, Explain with example? 8
2. a) Write a program to show the usages of various data types in java. 7
b) Define Inheritance. Write a program which has two classes A and B, where A should act as Parent class and B should inherit from A. 8
3. a) Define Exception handling with Example. 7
b) Create a Frame which has three textfield and one button. When user clicks on button it should calculate sum of the value of first and second textfield and display on third textfield. 8
4. a) What is difference between Interface and Class? Explain with an example. 8
b) Write a program to read content from file "abc.txt" and store it in "xyz.txt". 7
5. a) What are applets? Define Applet life cycle with Example. 7
b) Write a program to send "Message from Pokhara University" from client to server using java socket programming. 8
6. a) Define JDBC. Write a program to update data on following table. 8
 Table: student
 Column:
 NAME TYPE
 id number
 name varchar
 age number
 b) What is the difference between Frame and Swing? 7
 7. Write short notes on: (Any two) 2x5
 a) JRE
 b) Event handling
 c) Result Set

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Attempt all the questions.

1. a) How is interface different from abstract class? Explain the use of interface to achieve multiple inheritances. 8
- b) What are the uses of abstract keyword? Explain with a suitable program. 7
2. a) Create a class Employee with id, name, post and salary. Create a parameterized constructor to initialize the instance variables. Override the to String() method to display the employee details. 7
- b) What is exception handling? Explain. Write a program to handle Arithmetic Exception. 8
3. a) What is a dialog box? Explain its types. Write a program to create your own dialog box. 7
- b) What are the different types of streams supported by java? Explain. A data file "emp.txt" contains name, address and salary of 30 employees. Write a program to display only those records who are from "Kathmandu". 8
4. a) Create a swing GUI that contains a two buttons (add and subtract) and three text fields. When the buttons are clicked sum or difference of values of first two text fields should be displayed in the third text field respectively. 8
- b) Explain the use of URL and URL Connection class with a suitable program. 7
5. a) Write a program to display all records from the database table. Assume the name of database and table yourself. 7
- b) Differentiate between TCP and UDP. Create a TCP client application that takes input from user and sends it to the server. 8
6. a) How is applet different from normal java program? List out the steps for 7

converting applet into application.

- b) How can you create closable frames in swing and AWT? Write a program to draw a bar chart.
7. Write short notes on: (Any two)
- a) Reflection API
 - b) History of Java
 - c) JDBC API

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- a) What is reflection API? Explain.
- b) Mention the methods of public class Object.
- a) What is reflection method? Explain.
- b) How to use reflection API? Give some snippets.
- a) Explain how to create own exception class.
- b) What is the use of Create own exception class? Explain.
- a) Create a Java application to print uppercase letters.
- b) Demonstrate how to display a file in Java.
- i. a) Difference between reflection and serialization.
- b) What are the disadvantages of reflection?

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- a) What do you mean by architectural-neutral? What are wrapper classes? Explain. 7
- b) Mention the scope of all modifiers (private, default, protected and public). Write suitable program to illustrate the concept. 8
- a) What is method overloading? Can you override a private or static method in Java? Explain with an example. 8
- b) How does interface differ from abstract classes? Elaborate using code snippets to justify. 7
- a) Explain about FileReader and BufferedWriter class. How do you create own exception subclasses? Explain with an example. 8
- b) What are the differences between applet and normal java program? Create an applet with the functionalities to play, stop and repeat the audio. 7
- a) Create a swing GUI that contains a text field and a button. When the button is pressed the content in the text field should be changed into uppercase and background color of text field should be changed. 7
- b) Demonstrate various drawing methods. How do you create, load and display image? 8
- a) Differentiate between TCP and UDP sockets. Explain InetAddress class. 7
- b) What are some key classes defined in java to work with datagrams? How do you get a list of IP addresses that are assigned to a network interface? 8
- a) What is the benefit of using Prepared Statement in java? What is JDBC database connection pool? How to setup in Java? 8

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- b) A database "testdb" contains a table "employee" with some records having id, name, post, salary. Write a program to update the salary to 50000 whose post is "Manager".
7. Write short notes on (Any Two):
- Inner Class
 - C++ Vs Java
 - Types of JDBC drivers

- a) What are platform
- b) Explain inheritance
- a) What is
- b) Create "abc.txt"
- a) What is
- b) What are Explai
- a) Cr
- b) X
- c) Create the serial number
- d) Briefly

POKHARA UNIVERSITY

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Semester: Fall

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Attempt all the questions.

1. a) What are the most powerful features of java? Describe how it is a platform neutral language by a diagram. 7
- b) Explain multiple inheritance. How is it possible to achieve multiple inheritance in java? 8
2. a) What is interface? WAP to show interface implementation in java. 8
- b) Create a program to write "Test on File Handling" inside a file "abc.txt". 7
3. a) What is an Applet? Explain life cycle of applet. 8
- b) What are the differences between GridLayout and GridBagLayout? Explain FlowLayout. 7
4. a) Create a swing GUI that contains a button, and two text fields. When the button is clicked the value of first text field should be checked and display "odd number" or "even number" in the second text field. 8
- b) Create a graphics application to display "Pokhara University" in blue color with font name: Times New Roman, type:Bold and size:20. Also write HTML to embed the applet. 7
5. a) Draw a diagram illustrating how client server interaction occurs in UNIX based system, with detailed methods in each step. 7
- b) Create a TCP client/server program in which client sends an integer to the server and the server responds to client by sending square of the number sent by client. 8
6. a) Briefly describe the JDBC-ODBC types of bridge and driver in java. 7

- b) Write a program to display only those records whose salary is more than 25000 from a table that contains id, name, post and salary of some employees.
7. Write short notes on: (Any two)
- Reflection API
 - Events and event classes
 - Types of JDBC drivers

- a)
- b)
- a)
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POKHARA UNIVERSITY

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Semester: Spring

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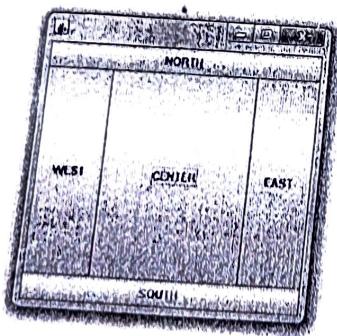
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Attempt all the questions.

- | | | |
|-------|---|---|
| 1. a) | List the advantages of java programming language. Why is it also known as platform independent language? | 8 |
| b) | In what condition is the use of "this" operator mandatory? Explain with suitable program. | 7 |
| 2. a) | Why Reflection is regarded as a powerful aspect in java? WAP to demonstrate your answer. | 8 |
| b) | What do you mean by exception? How exception handling is different from error handing? Explain. | 7 |
| 3. a) | State the life cycle of an applet. Can it be changed into application? If yes, justify your answer. | 8 |
| b) | What is layout manager? State the different types of layout manager in swing. WAP to generate the following output in java using Boxlayout. | 7 |



- | | | |
|----|--|---|
| a) | Create a swing GUI which contains a text field (to input radius of circle), a label and a button. When the button is clicked area of circle should be calculated and displayed in the label. | 8 |
| b) | WAP to display the flag of nepal, drawing a graph along with the reasonable coordinates. | 7 |

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5. a) Explain network programming. Compare TCP and UDP sockets.
b) Create a TCP client/server program in which client and server communicate by sending a message to each other.
6. a) Draw JDBC architecture and describe different types of JDBC Drivers.
b) Discuss the tags used in applet.
7. Write short notes on: (Any two)
a) Interface and Inner Classes
b) Different event handling mechanisms
c) Executing SQL queries from Java

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Semester: Fall

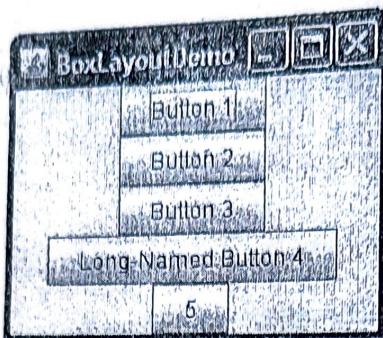
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Attempt all the questions.

- a) Explain the Intermediate Working principal of java programming language that makes it runnable on any platform. 8
- b) Why multiple inheritance is not supported in Java. Provide a simple code example to support yours answer. 7
- a) Why Reflection is regarded as a powerful aspect in java? WAP to demonstrate your answer. 8
- b) Define exception and explain why it is necessary to handle exceptions? WAP to write bytes of data to a file called "exams.txt" and reading it until end of file is obtained, using proper exception handling. 7
- a) Define Applet and explain its lifecycle. Create a simple Applet and demonstrate how we can run a Java Applet. 8
- b) Create a Frame with two Text Fields, one of which should show whether the mouse pointer is inside or outside the Frame and the other text field should display the X and Y co-ordinates of the pointer when the user moves the mouse pointer inside the Frame area. 7
- a) State the different types of layout manager in swing. WAP to generate the following output in java using Box Layout. 7



- b) As per a recent survey, among all the Javascript frameworks 40% prefers React while Angular comes second with 30% developers preferring it and 20% of developers prefer Vue while remaining 10% use other frameworks. Create a pie to show case the survey information.
5. a) What are the different socket types in java? Draw a diagram with appropriate methods to describe client server interaction in java.
b) Explain the use of URL and URL connection class with a suitable example.
6. a) What is JDBC? Draw JDBC architecture and explain JDBC drivers with their advantages and disadvantages.
b) WAP to insert data of any student with schemas (name, age, Semester, University, Status.) By default, Sqlconnector is to be used, (if comfortable with any database connector, free to describe and use accordingly)
7. Write short notes on: (Any two)
a) Wrapper class.
b) Life cycle of an applet.
c) TCP and UDP socket.

Level: Basic
Program: _____
Course: _____
Candidate: _____
The figure

Q.N.1

Q.N.2

Q.N.3

Q.N.4

Q.N.5

Q.N.6

Q.N.7

POKHARA UNIVERSITY

Level: Bachelor
Program BE
Course: Programming in JAVA

Semester - Spring

Year: 2020
Full Marks: 70
Pass Marks: 31.5
Time: 2 hrs.

Candidates are required to answer in their own words as far as practicable.
The figures in the margin indicate full marks.

Attempt all the questions.

Group - A: (5×10=50)

- Q. N. 1 Illustrate the scope of static and local variable with an example. Differentiate between applet and Java application 10

OR

The final keyword in Java can be applied to fields, parameters, methods and classes.

For each of these four uses, explain what the effect of the final keyword is.

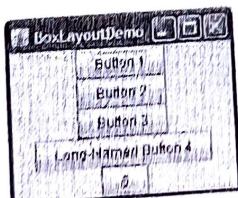
10

- Q. N. 2 What are the types of I/O streams.
Write a program in java using FileWriter to write "Pokhara University is awesome for programming" in a new file. 10

- Q. N. 3 Why Reflection is a powerful tool used in software testing and debugging?
Elaborate with a small example. 10

- Q. N. 4 Define JDBC architecture and differentiate type 1 versus type 4 JDBC driver with merits and demerits. 10

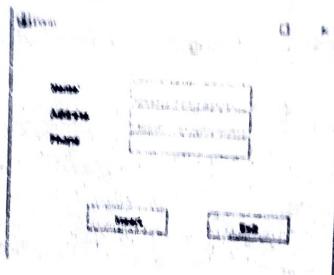
- Q. N. 5 WAP to connect a java program to database successfully.
State the different types of layout manager in swing. WAP to generate the following output in java using BoxLayout. 10



Group - B: (1x20=20)

Q. N. 6 Write a program to create a GUI based application that stores the user input in a database.

20



The program should have following requirements

- Delegate separate class for Event handling, GUI display and database operations.
- When Insert button is pressed the information entered in the fields should be saved in a database.
- The Insert button should be disabled unless all the fields are filled
- After every database entry the user should be informed using dialog box whether the operation has been successful or not
- The Exit button should close the application

1.

2.

3.

4.

POKHARA UNIVERSITY

Level: Bachelor
Programme: BE
Course: Programming in Java

Semester: Fall

Year : 2021
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What do you mean by architectural-neutral? What are wrapper classes? Explain. 7
- b) What is Singleton class? What is the difference between abstract class and interface? 8
2. a) Define Inheritance and Composition. With the help of a suitable program illustrate the difference between them. 7
- b) What is method overloading? Can you override a private or static method in Java? Explain with an example. 8
3. a) Explain about File Reader and Buffered Writer class. How do you create your own exception class? Explain with suitable programming example. 8
- b) Create an applet that plays a sample audio file. Also create a GUI that allows users to play, stop or replay the audio. Add a functionality to automatically stop the audio if the applet is inactive. 7
4. a) What do you mean by delegation event model? Explain various event listener interfaces with an example. 7
- b) What advantage do java's layout managers provide over traditional windowing systems? How do you create menu in Swing? Explain with an example. 8
5. a) As per a poll conducted in a class of 48 students, 25 students are supportive of virtual classroom while 15 are against it and remaining 8 students chose to stay neutral. Create a pie chart to illustrate this poll result. 8
- b) Write a TCP socket program to accept a line of string input from the client and send it to server. The server checks if the string is Palindrome or not and send result back to client. Client machine 7

displays the string received from server.

6. a) What are the differences between JDBC and ODBC? What are the steps to connect to the database in java?
- b) A database "testdb" contains a table "Student" with fields id, name and address. Write a program that asks user to enter the information and save them in the database. The program should prompt the user to press y/n to either continue or exit the program after every successful entry.
7. Write short notes on: (Any two)
 - a) Abstract class
 - b) An Applet Skeleton
 - c) Inner Class