

# POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2021

Programme: BE

Full Marks: 100

Course: Programming in Java

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.*

- 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? 7
- 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. 8
7. Write short notes on: (Any two) 2×5
  - a) Abstract class
  - b) An Applet Skeleton
  - c) Inner Class



Level: Bachelor  
Programme: BE  
Course: Programming in Java

Semester: Fall

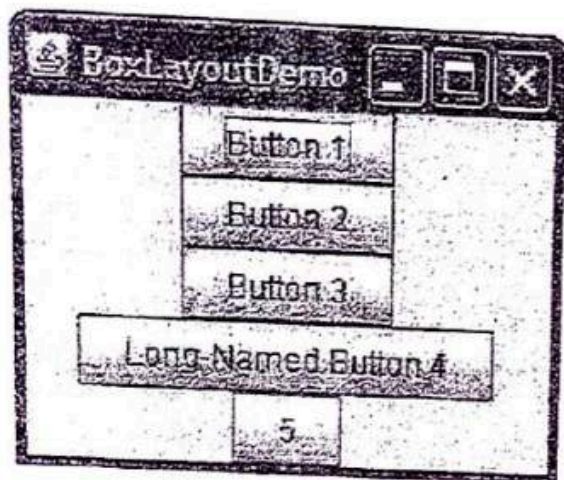
Year : 2020  
Full Marks: 100  
Pass Marks: 45  
Time : 3hrs.

*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) 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 your answer. 7
2. 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
3. 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
4. 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. 8
5. a) What are the different socket types in java? Draw a diagram with appropriate methods to describe client server interaction in java. 8
- b) Explain the use of URL and URL connection class with a suitable example. 7
6. a) What is JDBC? Draw JDBC architecture and explain JDBC drivers with their advantages and disadvantages. 7
- b) WAP to insert data of any student with schemas (name, age, Semetar, University, Status.) By default, Sqlconnector is to be used ( if comfortable with any database connector, free to describe and use accordingly) 8
7. Write short notes on: (Any two) 2×5
- a) Wrapper class.
- b) Life cycle of an applet.
- c) TCP and UDP socket.



## POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2019

Programme: BE

Full Marks: 100

Course: Programming in Java

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 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. 8

7. Write short notes on: (Any two) 2×5

- a) Reflection API
- b) Events and event classes
- c) Types of JDBC drivers

# POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming in Java

Semester: Spring

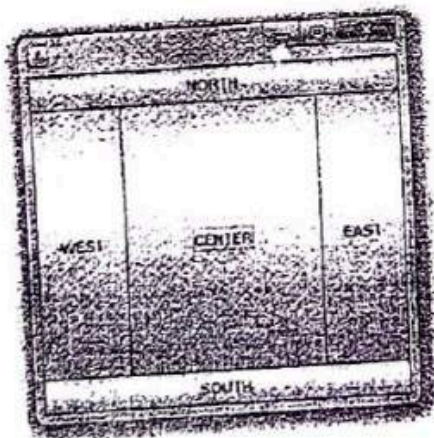
Year : 2019  
Full Marks: 100  
Pass Marks: 45  
Time : 3hrs.

*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) 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 handling? 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



4. 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



5. a) Explain network programming. Compare TCP and UDP sockets. 7  
b) Create a TCP client/server program in which client and server communicate by sending a message to each other. 8
6. a) Draw JDBC architecture and describe different types of JDBC Drivers. 7  
b) Discuss the tags used in applet.
7. Write short notes on: (**Any two**) 8  
a) Interface and Inner Classes 2×5  
b) Different event handling mechanisms  
c) Executing SQL queries from Java



# POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming in Java

Semester: Fall

Year : 2018  
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) 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 toString() 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
- How to apply different types of normal java program? List out the steps for 7

**Saved successfully**

converting applet into application.

b) How can you create closable frames in swing and AWT? Write a program to draw a bar chart. 8

7. Write short notes on: (**Any two**)

2×5

- a) Reflection API
- b) History of Java
- c) JDBC API

# POKHARA UNIVERSITY

Level: Bachelor

Semester: Spring

Year : 2018

Programme: BE

Full Marks: 100

Course: Programming in Java

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. 8  
b) Mention the scope of all modifiers (private, default, protected and public). Write suitable program to illustrate the concept. 8
2. 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. 8
3. 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. 8
4. 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. 8  
b) Demonstrate various drawing methods. How do you create, load and display image? 8
5. a) Differentiate between TCP and UDP sockets. Explain InetAddress class. 8



- 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)**:

- a) Inner Class
- b) C++ Vs Java
- c) Types of JDBC drivers

# POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming in Java

Semester: Fall

Year : 2017  
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) Justify the statement, "Java is designed for distributed application". 7  
Explain the different types of Java variables.
- b) Explain with example: static block, static variable and static method. 8  
Why main method is always static and public in Java?
2. a) How can you achieve multiple inheritance in java? Explain with a 7  
suitable program.
- b) What are the main uses of super, finalize and this keyword? Explain 8  
how a package is created and accessed while developing an application in Java.
3. a) Write a program to store object of a class Student into a file 7  
"student.dat" also read the objects from same file and display the state of objects on the screen. Handle possible exceptions.
- b) Differentiate error with exception. Write a program to create your own 8  
exception class in java.
4. a) Explain Applet Architecture. How can you convert applet to 7  
application? Explain with suitable example.
- b) How Event is handled in Java? Write a Java program to create a swing 8  
application with 3 buttons representing your favourite colors. When a button is clicked, the background color must change to the  
selected color.

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



# POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2016

Programme: BE

Full Marks: 100

Course: Programming in Java

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.*

- 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
- 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
- b) Why is exception handling essential? Differentiate between checked and unchecked exceptions with relevant examples. 2+5 = 7
- a) 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
- Write a program to generate a Frame with two buttons "BLACK" and "WHITE". 8

**Saved successfully**

# POKHARA UNIVERSITY

Level: Bachelor

Programme: BE

Course: Programming in Java

Semester: Spring

Year : 2017

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) 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



# POKHARA UNIVERSITY

Level: Bachelor

Programme: BE

Course: Programming in Java

Semester: Spring

Year : 2016

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) 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: 7  
    Height = 400  
    Width = 400  
    Title = My Frame
5. a) Create a Frame with one button and one textfield, when user clicks on the button the text entered on textfield should be changed to uppercase. 8  
    Event Handling with various types of event available on java. 7  
    Example. 7



6. a) What is a ResultSetMetadata. Provide a simple example code to illustrate its usage: 8
- b) Discuss about the different types of database drivers 7
7. Write short notes on: (**Any two**) 2×5
- a) Assignment vs. initialization
- b) Closable JFrame
- c) Runtime Polymorphism in Java

## POKHARA UNIVERSITY

Level: Bachelor

Programme: BE

Course: Programming in Java

Semester: Spring

Year : 2015

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) 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 Chart 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 to a server and reads the contents of a file.

# POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming in Java

Semester: Spring

Year : 2015  
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) 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)  
a) JIT compile  
b) Repaint method  
c) Inner Class 2x5



# POKHARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming in Java

Semester: Fall

Year : 2014  
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) 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
2. 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
3. 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
4. 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 sum 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. 7  
Note that the string should be in serif font with size 20 and style bold.

5. a) Define Socket programming and its usage in java. 7  
 b) What do you mean by URL? Provide a simple program using the URL class to show URL processing in java. 8
6. a) What do you mean by JDBC Drivers? Write short notes about : 8  
 i. JDBC-ODBC Bridge  
 ii. Java Native Driver 7
- 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) 2×5  
 a) Reflection  
 b) Data Types  
 c) Closable Frames.



# POKPARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming In Java

Semester: Spring

Year : 2014  
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.*

- a) What do you mean by Java System Overview? Explain why Java program are known as portable and architecture neutral. 7
- b) Differentiate between package and interface in Java. Provide examples for each of them. 8
- a) 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 toString 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: "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". 5
- c) Differentiate between Gridbag Layout and Grid Layout. 5



# POKHARA UNIVERSITY

Level: Bachelor

Semester – Fall

Year : 2013

Programme: BE

Full Marks: 100

Course: Programming in Java

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.*

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

```
1
0 1
1 0 1
0 1 0 1
```

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

2. 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

3. 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

4. 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

5. 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

6. a) What are the steps involved for making a connection with a database. 8  
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.

4. a) What are heavyweight components in Java? Are there any alternatives to those heavyweight components? Provide a comparative illustration. 8
- b) Write a program to draw a Bar Chart of Number of Students giving exam for Java, C and C++. 7
5. a) Differentiate between URL and URL Connection class with relevant examples. 7
- b) Discuss the process of creation of server and client sockets with Exceptions handled explicitly with a suitable example. 8
6. a) What do you mean by JDBC Drivers? Write short notes about: 8
  - 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
7. Write short notes on: (Any two) 2×5
  - a) Dialog Box.
  - b) Closable Frames.
  - c) Inner Class.

b) Define JDBC and ODBC. Briefly explain the different types of JDBC driver. 7

Write short notes on any two:

2×5

- a) Dynamic Dispatching
- b) Layout Management
- c) *Graphics object*



# FOKKARA UNIVERSITY

Level: Bachelor  
Programme: BE  
Course: Programming in Java

Semester: Spring

Year : 2013  
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) 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
2. a) Explain the following terms with suitable program. 8
  - i. Access Protection Mechanism
  - ii. Inner classes:
- b) Explain various stream classes available in Java. Write a program using any stream class for writing text to a file. 7
3. 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 test fields with labels arg1, arg2 and result respectively. a menu called file with sub menus add, subtract and close. 7
4. 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
5. 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
6. a) 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 drivers.

7. Write short notes on: (Any two)

a) Casting abstract class

b) Life Cycle of Applet

c) Frame Layout.