

Q.1 a. Explain anonymous classes, with the help of appropriate code fragment.

Answer: Herbert Schildt-Java2/ Chapter-22/Anonymous Inner Classes/Pg-662.

- b. What is a wrapper class? List the wrapper class for**
(i) converting object numbers to primitive numbers
(ii) converting number to strings
(iii) converting string objects to numeric objects

Answer: Page 168 (Balaguruswamy)

c. Explain the terms introspection and persistence w.r.t. javabeans.

Answer: Herbert Schildt-Java2/ Chapter-28/Java Beans/Pg-848,851.

d. What is the Java collection framework and why was it defined? Is Iterator a Class or Interface? Where is it used?

Answer: Page 133 & 140

e. Differentiate between the constructor method and finalizer method of Java.

Answer: Herbert Schildt-Java2/ Chapter-27/Remote Method Invocation /Pg-837-840

f. What is Java applet? How is it different from Java application program?

Answer: Herbert Schildt-Java2/ Chapter-21/Applets Skeleton and Basics /Pg-617-621

g. What is the function of layout Manager? Explain in brief, any two layouts available in Java.

(7 × 4)

Answer: Herbert Schildt-Java2/ Chapter-24/Understanding Layout Managers /Pg-723-725

Q.2 a. Explain the advantages of object oriented programming language over structured programming language.

(4)

Answer: Herbert Schildt-Java2/ Chapter-2/Object Oriented Programming /Pg-15, 16

b. Why is Java considered a “Robust” and “Architecturally Neutral” language?

(5)

Answer: Herbert Schildt-Java2/ Chapter-1/The Java Buzzwords /Pg-11,12

c. Identify the conditional operator in Java. Use this operator to compute the weekly salary of a salesperson selling books in a store. If “x” is the number of books sold in a week, the weekly salary is computed as .

(1+4)

$$\text{Salary} = \begin{cases} 4x + 100 & \text{for } x < 40 \\ 300 & \text{for } x = 40 \\ 4.5x + 150 & \text{for } x > 140 \end{cases}$$

Answer:

$\text{Salary} = (x \neq 40) ? ((x < 40) ? (4 * x + 100) : (4.5 * x + 150)) : 300;$

d. Differentiate between ArrayList and Vector Class. (4)

Answer: Herbert Schildt-Java2/ Chapter-17/The Collections Framework /Pg-448-451

Q.3 a. What are “Abstract classes” in Java? Can an instance of an abstract class be created? Explain with example. (8)

Answer: Herbert Schildt-Java2/ Chapter-8/Inheritance-Using abstract Classes /Pg-177-179

b. Identify the hierarchy of stream classes provided as a part of “java.io” package. Differentiate the “Reader” and “Writer” classes. (6)

Answer: Herbert Schildt-Java2/ Chapter-19/Input-Output-The Character Streams /Pg-579-582, 556-557

c. Describe how a copy of an entire Java object with its state can be created? (4)

Answer: Herbert Schildt-Java2/ Chapter-16/Exploing java.lang-Using clone() and cloneable Interface /Pg-413-415

Q.4 a. What is a thread? Describe the complete life cycle of a thread. How can we set the priority of a thread in Java? Explain with an example. (1+5+2)

Answer:

Page 207 (Balaguruswamy), Page 214 (Life Cycle Balaguruswamy), Page 220 Setting Priority → setPriority() method

b. What is thread synchronization? How is it achieved in Java, explain with the help of an example. (10)

Answer: Herbert Schildt-Java2/ Chapter-11/Multithreading Programming-Synchronization /Pg- 238-240

Q.5 a. Write a program in java for user defined exception named “illegal age exception”. If the age entered by the user is less than 18 years or greater than 60 then the program should raise this exception which is explicitly handled by code. (8)

Answer:

```
import java.io.*;
class VoterException extends Exception
{
    public String toString()
    {
        return "VoterException:- Voter age is less than 18";
    }
}
class VoterExceptionDemo
{
    static void age(int a)throws VoterException
    {
```

```

        //System.out.println("called age");
        if(a<18)
            throw new VoterException();
        //System.out.println("Normal Exit");
    }
    public static void main(String args[])throws IOException
    {
        int a;
        BufferedReader          in1=new          BufferedReader(new
InputStreamReader(System.in));
        System.out.println("Enter age:-");
        a=Integer.parseInt(in1.readLine());
        try
        {
            age(a);
            System.out.println("Age is valid");
        }
        catch(VoterException v)
        {
            System.out.println("Caught "+v);
        }
    }
}

```

b. What is an exception? Explain, in brief, the basic exception handling mechanism of Java.

Substantiate your answer with the general syntax of an exception handling block. List any two checked and any two unchecked exception defined in java.lang. (1+3+2)

Answer: Page 218 (List of exceptions), Page 205 (Exception & Syntax)

c. Discuss the various levels of access protection available for packages and their implications. (4)

Answer: Page 186 – 187

Q.6 a. Write a program to implement TCP/UDP Client Server architecture program (6)

Answer: Herbert Schildt-Java2/ Chapter-20/Networking- A Datagram Example /Pg-615-616

b. Write an applet to write a file by making textarea for writing in a browser using TextArea() making Labels & then creating file using File() constructor. (7)

Answer:

Sample Code(Any alternative code is also correct which produces similar results)

```
import java.io.*;
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
import java.applet.Applet;
import java.net.*;

public class WriteFile extends Applet{
    Button write = new Button("WriteToFile");
    Label label1 = new Label("Enter the file name:");
    TextField text = new TextField(20);
    Label label2 = new Label("Write your text:");
    TextArea area = new TextArea(10,20);
    public void init(){
        add(label1);
        label1.setBackground(Color.lightGray);
        add(text);
        add(label2);
        label2.setBackground(Color.lightGray);
        add(area);
        add(write, BorderLayout.CENTER);
        write.addActionListener(new ActionListener (){
            public void actionPerformed(ActionEvent e){
                new WriteText();
            }
        });
    }
}

public class WriteText {
    WriteText(){
        try {
            String str = text.getText();
            if(str.equals("")){
                JOptionPane.showMessageDialog(null,
                    "Please enter the file name!");
                text.requestFocus();
            }
            else{
                File f = new File(str);
                if(f.exists()){
                    BufferedWriter out = new
                        BufferedWriter(new FileWriter(f,true));
                    if(area.getText().equals("")){
                        JOptionPane.showMessageDialog
                            (null,"Please enter your text!");
                        area.requestFocus();
                    }
                }
                else{
                    out.write(area.getText());
                    if(f.canWrite()){
                        JOptionPane.showMessageDialog(null,
                            "Text is written in "+str);
                        text.setText("");
                        area.setText("");
                    }
                }
            }
        }
    }
}
```

```

        text.requestFocus();
    }
    else{
        JOptionPane.showMessageDialog(null,
            "Text isn't written in "+str);
    }
    out.close();
}
else{
    JOptionPane.showMessageDialog
        (null,"File not found!");
    text.setText("");
    text.requestFocus();
}
}
}
catch(Exception x){
    x.printStackTrace();
}
}
}
}

```

c. List and explain in brief, the various types of controls supported by AWT. (5)

Answer: Herbert Schildt-Java2/ Chapter-24/Using AWT Controls /Pg-701-704

Q.7 a. Write short note on the following:

- (i) Delegation Event Model**
- (ii) ActionListener Interface**
- (iii) CardLayout with an example program (Layout Manager). (3×5)**

Answer:

- i. Herbert Schildt-Java2/ Chapter-22/Event Handling-The event Delegation Model /Pg-638-639
- ii. Herbert Schildt-Java2/ Chapter-22/ Event Handling-Event Listener Interfaces/Pg-650-651
- iii. Herbert Schildt-Java2/ Chapter-23/Using AWT Controls-Understanding Layout Managers /Pg-730-732

b. Why are the swing components called light weight components? (3)

Answer:

Herbert Schildt-Java2/ Chapter-29/Introducing Swings-Swing Features /Pg-859-860

TEXT BOOKS

- I. Herbert Schildt-Java2: The Complete Reference, Vth Edition, 45th reprint 2009, Tata McGraw Hill
- II. E. Balagurusamy-Programming with Java: A Primer, 3rd Edition, 2006, Tata McGraw-Hill