**SAVEETHA SCHOOL OF ENGINEERING**

SSE/EXAMS/FORM-10/QPFORMAT

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES**

**Computer Science &Engineering Programme**

**& Information Technology Programme**

**Question Bank**

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| **Sub Code: CSA09** | **Subject Name: Programming in Java** | |
| **Branch:** CSE & IT | **Year:**  II, III, IV |  |

**Course Outcomes**

1. Create a Java application which incorporate object-oriented features such as encapsulation, inheritance and polymorphism.
2. Develop a real time application to store, retrieve, delete and update the data efficiently.
3. Create an application that handles exception and to implement multithreading.
4. Connect to data sources using simple java API.
5. Implement user interface for real time applications using AWT and Applets.

**Blooms Taxonomy Levels (BTL)**

1. Remembering 2. Understanding 3. Applying 4. Analysing 5. Evaluating 6. Creating

**UNIT I**

**ANSWER ALL THE QUESTIONS**

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| --- | --- | --- | --- | --- | --- |
| **Q.No** | **Questions** | **Marks** | **CO** | **BTL** | **PI** |
| 1. | Generate a code in Java to find sum of Digits. For example 123 should be converted into 6. | 5 | 1 | 2 | 1.4.1 |
| 2. | **Debug and Predict the output**  class x{  void display();  {  System.out.pritnln(“hello”);  }}  class X extended x  {  void display();  {  Sytsem.out.println(“welcome”);  }  X a=new X();  a.display();  } | 2 | 1 | 4 | 1.3.1 |
| 3. | Define class. Develop a JAVA code to display the balance. Include the following members:   * Design a class to represent a bank account. * **Data Members:** Name of the depositor, Account number, Type of account(Savings/Current), Balance amount in the account(Minimum balance is Rs.500.00) * **Methods:**  1. To read account number, Depositor name, Type of account. 2. To deposit an amount (Deposited amount should de added with it) 3. To withdraw an amount after checking balance(Minimum balance must be Rs.500.00 | 10 | 1 | 2 | 2.2.2 |
| 4 | Briefly explain the concepts of object oriented programming. Develop a Java Program for the following Sketch  Department  Course  college | 10 | 1 | 2 | 2.3.2 |
| 5 | Develop a Java code to Reverse and Add a Number until you get a Palindrome.  Example: If 7325 is input number, then  7325 (Input Number) + 5237 (Reverse Of Input Number) = 12562  12562 + 26521 = 39083  39083 + 38093 = 77176  77176 + 67177 = 144353  144353 + 353441 = 497794 (Palindrome) | 10 | 1 | 4 | 2.1.3 |
| 6 | Define data type. What are data type available in Java? Find out the memory occupied by different data types by generating suitable Java code. | 5 | 1 | 1 | 2.2.2 |
| 7 | Identify whether following interface can be valid? Why?  public interface SomethingIsWrong{  void aMethod(int Value){  System.out.println("Hi Mom"); } } | 2 | 1 | 2 | 1.3.1 |
| 8 | Bank is a class that provides method to get the rate of interest. But, rate of interest may differ according to banks. For example, SBI, ICICI and AXIS banks are providing 8.4%, 7.3% and 9.7% rate of interest. Write a Java program for above scenario. | 5 | 1 | 3 | 2.1.3 |
| 9 | Find all pairs of elements in an integer array whose sum is equal to a given number.  Example : If Input Array : [4, -5, 9, 11, 25, 13, 12, 8]  Input Number : 20.  Develop a Java Program for above scenario. | 5 | 1 | 4 | 1.4.1 |
| 10 | Generate a Java code that implements java selection and iteration statements. Use do while loop to process a menu selection. When a menu is selected, it should display the syntax of the selected statements. | 10 | 1 | 3 | 2.1.1 |
| 11 | Is Dynamic Initialization is permitted in Java? If so explain how? | 2 | 1 | 1 | 1.3.1 |
| 12 | Predict the output for the following code.  class PrePost {  public static void main(String[] args) {  int i = 4;  i++;  System.out.println(i);  ++i;  System.out.println(i);  System.out.println(++i);  System.out.println(i++);  System.out.println(i);  } } | 2 | 1 | 4 | 1.3.1 |
| 13 | Bring out the situation in which member names of a subclass hide members by the same name in the super class. How it can be resolved? Write Suitable code in Java.  Implement above scenario with the Parametrized Constructor of the Super Class can be called from Sub Class Using super() | 5 | 1 | 3 | 1.4.1 |
| 14 | Generate a Code in Java to show significance of ‘this’ keyword in instance variable hiding. | 2 | 1 | 1 | 1.3.1 |
| 15 | Define class and object with example. | 2 | 1 | 2 | 1.3.1 |
| 16 | What do you mean by Method overloading? | 2 | 1 | 1 | 1.3.1 |
| 17 | Write a Java program to find the greatest of 3 numbers. | 2 | 1 | 3 | 1.4.1 |
| 18 | Consider a quadratic equation ax2-bx+c=0. Write a Java program to compute the roots of the given quadratic equation. | 5 | 1 | 3 | 1.3.1 |
| 19 | Define Constructor. How does it differ from normal function? | 5 | 1 | 2 | 1.3.1 |
| 20 | Create class vehicle and derive subclass using multilevel inheritance. | 5 | 1 | 3 | 1.4.1 |
| 21 | Write the java program to find area of different Shapes using compile time polymorphism. | 5 | 1 | 3 | 1.4.1 |
| 22 | What are access specifiers in Java? | 2 | 1 | 1 | 1.3.1 |
| 23 | What is Instance Variable Hiding? | 2 | 1 | 1 | 1.3.1 |
| 24 | Define Garbage Collection. | 2 | 1 | 1 | 1.3.1 |
| 25 | What is the importance of ‘this’ keyword in instance variable hiding? | 2 | 1 | 1 | 1.4.1 |

**UNIT II**

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| 1 | Create a student record using map interface and do the following operations.  1.Add object 2. Remove specified object  3. isEmpty or not 4. Clear | 5 | 2 | 3 | 2.2.2 |
| 2 | Generate a Java Code to implement bounded types (extend superclass) with generics for finding largest of three numbers using predefined class Comparable and compareTo() Method | 5 | 2 | 3 | 2.1.2 |
| 3 | Generate Java code to perform below operations for the string “object oriented” and “PROGRAMMING LANGUAGES**”**   1. Find the index of the character 2. Conversion of uppercase to lowercase 3. Conversion of lowercase to uppercase 4. Replace the word Oriented with ‘Based’ 5. Find the Substring | 10 | 2 | 2 | 2.1.2 |
| 4 | Predict the output for the following code.  import java.util.HashSet;  class set{  public static void main(String args[]) {  HashSet<Integer>s1= new HashSet<Integer>();  s1.add(1);  s1.add(2);  s1.add(2);  System.out.println(s1);  }  } | 2 | 2 | 4 | 1.3.1 |
| 5 | Accept the string “ Welcome to Saveetha university” and “Chennai” from the user and perform the following operations by writing a suitable Java code.   1. Replace any word in the given String 2. Find the length 3. Uppercase Conversion 4. Lowercase Conversion 5. Concatenate Operation | 10 | 2 | 3 | 2.2.2 |
| 6 | Generate a source code in Java to add three student records which includes name, age, rollno, department in the list using ArrayList class. | 5 | 2 | 3 | 2.1.2 |
| 7 | Create a HashTable to maintain a bank detail which includes Account number and Customer name. Let Account number be the key in the HashTable. Write a Java program to implement the following operations in the HashTable   1. Add 3 records 2. Display the size of HashTable 3. Clear the HashTable | 5 | 2 | 3 | 2.3.1 |
| 8 | Brief the features of Generic Programming. Write a Java program to create a generic class with two data type as a parameters. | 10 | 2 | 2 | 1.4.1 |
| 9 | Find the Error in the following Java code  import java.util.HashSet;  class set  {  public static void main(String args[])  {  HashSet<Integer>s1= new HashSet<Integer>();  s1.add("A");  s1.add("B");  s1.add("C");  System.out.println(s1);  }} | 2 | 2 | 2 | 1.3.1 |
| 10 | Differentiate Iterator and ListIterator class. Using Iterator in Java to insert the following elements using Iterator, append + symbol in the each existing element and print them in reverse order. Using ListIterator{C,A,E,B,D,F}. | 10 | 2 | 3 | 2.1.2 |
| 11 | Define Generic Programming Create a simple generics class with type parameters for sorting values of different types. | 10 | 2 | 3 | 2.1.2 |
| 12 | Write syntax for Generic class and Generic function. Create a simple generics class with two type parameters for swapping two values of different types. | 10 | 2 | 3 | 2.1.2 |
| 13 | Write a Java program to convert all the characters in a string to uppercase. | 2 | 2 | 2 | 1.3.1 |
| 14 | Predict the error for the following code.  class Text  {  public static void main(String args[])  {  String s =null;  System.out.prinln(s.length());  }  } | 2 | 2 | 2 | 1.3.1 |
| 15 | Generate a code in Java to perform below operations for the string “Java” and “ Programming**”**   1. Find the index of the character 2. Compare two strings 3. Concatenate two strings.   . | 5 | 2 | 2 | 2.2.2 |
| 16 | Write the interfaces defined by Collection Framework. | 2 | 2 | 2 | 1.3.1 |
| 17 | Write the functions of SortedSet interface. | 2 | 2 | 1 | 1.3.1 |
| 18 | Write Short note on Hashmap. | 2 | 2 | 1 | 1.3.1 |
| 19 | List out benefits of Collection Framework. | 2 | 2 | 1 | 1.3.1 |
| 20 | Differentiate Set and List | 2 | 2 | 1 | 1.3.1 |
| 21 | Consider str1= “Well” and str2= “done”. Write String methods to concatenate, store and find the length of the string. | 5 | 2 | 3 | 1.3.1 |
| 22 | Create a HashTable to maintain a bank detail which includes Account number and Customer name. Let Account number be the key in the HashTable. Write a Java program to implement the following operations in the HashTable   1. Add three records 2. Display the size of HashTable 3. Clear the HashTable | 5 | 2 | 4 | 1.3.1 |

**UNIT III**

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| 1. | Generate a Java code to perform simple arithmetic operations and to throw Arithmetic Exception for Division-by-Zero. | 5 | 3 | 3 | 2.1.3 |
| 2. | Find the error and Debug the following code.  class multithreaded {  public static void main(String args[]) {  Thread t = Thread.CurrentThread();  t.Setname("New Thread");  System.out.println(t);  }  } | 2 | 3 | 2 | 1.3.1 |
| 3. | Display Multiplication table for 5 and 10 using various stages of life cycle of the thread by generating a suitable code in Java. | 5 | 3 | 3 | 2.1.3 |
| 4 | Using the concepts of thread with implementing Runnable interface in Java to generate Fibonacci series. | 5 | 3 | 3 | 2.1.2 |
| 5 | Define Multithreading. What are the two ways to create a thread? Write a Java program to create three threads in parallel and display the natural numbers in orders using sleep() method. | 10 | 3 | 2 | 2.2.2 |
| 6 | Find the error and Debug the following code.  class multithreaded\_programin{  public static void main(String args[]){  Thread t = Thread.CurrentThread();  System.out.println(t.Getpriority());  }  } | 2 | 3 | 2 | 1.3.1 |
| 7 | Generate a Java code to find the sum of N numbers using array and throw ArrayIndexOutOfBoundsException when the loop variable beyond the size N. | 5 | 3 | 3 | 2.1.2 |
| 8 | Using the concepts of thread with implementing Runnable interface in Java to find whether a given number is prime or not. | 5 | 3 | 3 | 1.4.1 |
| 9 | Define Exception. What are the two types of Exception? Name the Five Keywords in Exception Handling Mechanism. Generate a Java code to check the given string, if it is NULL throw NullPointerException | 10 | 3 | 2 | 1.4.1 |
| 10 | Find the output for the following code .  class Excep{  public static void main(String []arg) {  try {  int x=0;  int y=50/x;  System.out.println(“Division by zero”);  }  catch(ArithmeticException e) {  System.out.println(“catch block”);  }  } } | 2 | 3 | 4 | 1.3.1 |
| 11 | State the Life Cycle of a Thread. | 2 | 3 | 1 | 1.3.1 |
| 12 | Differentiate Multi-Processing and Multithreading. Write a source code in Java to find prime numbers and non prime numbers between 1 to 20 using a Runnable interface | 10 | 3 | 3 | 1.4.1 |
| 13 | Define Thread and Multithreading. List out the methods supported by Multithreading. Write a Java program to implement multiple threads and apply join method for thread and thread has to be started after 500ms using sleep(). | 10 | 3 | 3 | 1.4.1 |
| 14 | Predict the output for the following code  class exception\_handling {  public static void main(String args[]) {  try {  System.out.print("Hello" + " " + 1 / 0);  }  catch(ArithmeticException e) {  System.out.print("World");  }  }  } | 2 | 3 | 4 | 1.3.1 |
| 15 | Write syntax for setName() and getName(). Using the concepts of extends Thread in Java, Generate a code to set and get name for a Thread. | 5 | 3 | 2 | 1.4.1 |
| 16 | Generate a Java code to handle Exceptions such as ArithmeticException, ArrayIndexOutOfBoundsException, NullPointerException using Multi-Catch Statements. | 5 | 3 | 3 | 2.1.2 |
| 17 | What is Error? What are the types of Error? Write a Java Program to handle Exception such as ArithmeticException, ArrayIndexOutOfBoundsException,NumberFormatException, | 10 | 3 | 3 | 1.4.1 |
| 18 | Predict the output for the following program  public class San {  public static void main(String args[]) {  try {  System.out.print("Hello world ");  }  finally{  System.out.println("Finally executing ");  }  }  } | 2 | 3 | 4 | 1.3.1 |
| 19 | Write syntax for getPriority() and setPriority() methods. Using the concepts of extends Thread in Java to find the priorities for the multiple threads by writing suitable code | 5 | 3 | 2 | 1.4.1 |
| 20 | Create Customer class with deposit() and withdraw() as synchronized methods. Declare AccountNo, AccName and Balance as Instance Variables inside the class. From the main class, Input the amount for withdraw() operation and if requested amount is not available in existing Balance amount, withdraw() method should be temporarily suspended using wait() method until deposit() method receives the input for amount, to be added in the existing Balance amount and then withdraw() would be completed in a successful manner. Develop the above scenario using Synchronization and Inter-Thread Communication. | 10 | 3 | 4 | 2.1.3 |
| 21 | Explain life cycle of thread with neat diagram. | 5 | 3 | 2 | 1.3.1 |
| 22 | Differentiate Multiprocessing and Multithreading. | 2 | 3 | 2 | 1.3.1 |
| 23 | What are two types of error? | 2 | 3 | 2 | 1.3.1 |
| 24 | Define Exception. What are two types of Exception? | 2 | 3 | 1 | 1.3.1 |
| 25 | State the applications of Multithreading. | 2 | 3 | 1 | 1.3.1 |
| 26 | What are two types of synchronization? | 2 | 3 | 1 | 1.3.1 |
| 27 | Define Inter-Process Communication. | 2 | 3 | 1 | 1.3.1 |

**UNIT IV**

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| 1 | Assume your folder contain the file “Mydetails” and use renameTo() method in Java to rename it as “MyPersonalDetails” | 5 | 4 | 3 | 2.2.2 |
| 2 | Find the output for the following program  import java.io.\*;  class filesinputoutput{  public static void main(String args[]){  InputStream obj = new FileInputStream("inputoutput.java");  System.out.print(obj.available());  }  } | 2 | 4 | 4 | 1.3.1 |
| 3 | Create a File “testout.txt” with its content as “Welcome to”. Apply the following operations using appropriate I/O streams in Java to read a content of the file. . | 5 | 4 | 3 | 2.2.2 |
| 4 | Develop a Java program using JDBC to create, insert, update and delete student records and in student database which consist of following table structure.   |  |  | | --- | --- | | Sno | Int | | Sname | Varchar(20) | | Result | Varchar(6) |   Where Sno should be made not null and primary key. | 10 | 4 | 3 | 4.3.1 |
| 5 | Generate a code to Count the Number of Words, Character and Lines from the File using Stream I/O in Java. | 10 | 4 | 3 | 2.2.2 |
| 6 | Write a Java code to read string from console. | 2 | 4 | 2 | 1.4.1 |
| 7 | What is the output of this program if input given is ‘abcqfghqbcd’?  class Input\_Output {  public static void main(String args[]) throws IOException {  char c;  BufferedReader obj = new BufferedReader(new  InputStreamReader(System.in));  do  {  c = (char) obj.read();  System.out.print(c);  } while(c != 'q');  } } | 2 | 4 | 1 | 1.3.1 |
| 8 | Create file “MyDetails” using createNewFile() Method by writing a suitable code in Java. | 5 | 4 | 3 | 2.2.2 |
| 9 | Develop a Java program using JDBC to create, insert, update and delete employee records in employee database which consist of following table structure.   |  |  | | --- | --- | | Eno | Int | | Ename | Varchar(20) | | Salary | Double |   Where Eno should be made not null and primary key. | 10 | 4 | 3 | 4.3.1 |
| 10 | Generate a source code in java to delete “MyPersonalDetails” file using delete() Method. | 5 | 4 | 3 | 2.2.2 |
| 11 | Write a Java code to read Password from Console. | 2 | 4 | 2 | 1.4.1 |
| 12 | Write a Java Program to Serialize and Store the State of Object using Output Stream Class and Deserialize the Object and Retrieve the values using Input Stream Class. | 10 | 4 | 3 | 2.2.2 |
| 13 | Develop a Java program using JDBC to Insert and delete records for the following table Bank, which includes withdraw and deposit type options for the account holder.   |  |  | | --- | --- | | AccNo | Int | | Name | Varchar2(20) | | Balance | Double |   Where AccNo should be made Not Null and Primary Key. | 10 | 4 | 3 | 4.3.1 |
| 14 | List some methods supported by FileOutputStream Class in Java. | 2 | 4 | 1 | 1.3.1 |
| 15 | Copy the contents of “test3.txt” into “test4.txt” using FileInputStream and FileOuputStream class by writing suitable code in Java. | 5 | 4 | 3 | 2.2.2 |
| 16 | Brief Character Oriented Streams Classes and Methods. Generate a Java Code to Write and Read the string “Computer Science and Engineering” using FileWriter and FileReader Class. | 10 | 4 | 3 | 2.2.2 |
| 17 | Develop a Java program to insert the student records such as Rollno, Student name, Department, Mail-Id and Phone Number into a MySql database and display the record using JDBC connectivity. | 10 | 4 | 4 | 4.3.1 |
| 18 | Name the 3 streams, which are created automatically and attached with console in Java. | 2 | 4 | 1 | 1.3.1 |
| 19 | Generate a Java code for Appending the contents into existing file using PrintWriter or BufferedWriter and FileWriter. | 5 | 4 | 3 | 2.2.2 |
| 20 | Define Stream. What are the two types of Stream? Generate a Java Code to Write and Read the String “WELCOME TO SSE” using FileOutputStream and FileInputStream class. | 10 | 4 | 3 | 2.2.2 |
| 21 | State the features of Stream. | 2 | 4 | 1 | 1.3.1 |
| 22 | List some important Character Stream classes in Java. | 2 | 4 | 1 | 1.3.1 |
| 23 | Write a Java program to create a file. | 2 | 4 | 3 | 1.4.1 |
| 24 | List few Byte Stream Classes and Character Stream Classes in java. | 2 | 4 | 2 | 1.3.1 |
| 25 | Differentiate Serialization and Deserialization. | 2 | 4 | 2 | 1.3.1 |
| 26 | Why JDBC is important for data manipulation? | 2 | 4 | 2 | 1.3.1 |

**UNIT V**

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| 1 | Write a Java Applet program for Handling Mouse Events using MouseListenerInterface. | 10 | 5 | 3 | 2.2.2 |
| 2 | Is main() method mandatory to be defined in Applet program? Why? | 2 | 5 | 1 | 1.3.1 |
| 3 | Develop a Java Applet program to draw different Geometric shapes to create house. | 5 | 5 | 3 | 2.2.2 |
| 4 | What is Applet? How it is differ from an application? | 2 | 5 | 1 | 1.3.1 |
| 5 | Develop an applet program to compute multiplication of two numbers using following AWT components.   1. Crate a labels as “enter first number”, “enter second number” and “Multiplication of two numbers 2. Create textboxes for the inputs given by the user and getting output.   Design button as “Result” and “Clear”. If “submit” button is clicked, it has to display the multiplication of two numbers and “Clear” is clicked then textbox can be cleared. | 10 | 5 | 3 | 2.2.2 |
| 6 | Write an applet code in Java to set color for foreground and background for the given text. | 2 | 5 | 3 | 2.1.2 |
| 7 | Develop a Java Applet program for handling keyboard events using KeyListener Interface | 5 | 5 | 3 | 2.2.2 |
| 8 | Develop an applet program to compute division of two numbers using following AWT components.   1. Create a labels as “enter first number”, “enter second number” and “Division of two numbers 2. Create textboxes for the inputs given by the user and getting output.   Design button as “Result” and “Clear”. If “submit” button is clicked, it has to display the division of two numbers and “Clear” is clicked then textbox can be cleared. | 10 | 5 | 3 | 2.2.2 |
| 9 | What is the difference between applets loaded over the internet and applets loaded via the file system? | 2 | 5 | 1 | 1.4.1 |
| 10 | Brief the two ways to execute the Java Applet program and Write a code for displaying the message “Welcome to CSE Department”. | 5 | 5 | 3 | 2.2.2 |
| 11 | Design a form with necessary AWT components such as Label Box, Text Box and Buttons etc., for creating Student Bio-data form with proper validation is to be performed for getting input from the user. | 10 | 5 | 4 | 2.2.2 |
| 12 | Develop an applet program to animate a picture. | 5 | 5 | 3 | 2.2.2 |
| 13 | List the AWT Layout Managers in Java | 2 | 5 | 1 | 1.3.1 |
| 14 | Develop an Event Handling Applet Program in Java to print a message When the button is clicked. | 5 | 5 | 3 | 2.2.2 |
| 15 | Write the types of Applications in Java. | 2 | 5 | 1 | 1.3.1 |
| 16 | List the types of Menus available in AWT classes. | 2 | 5 | 1 | 1.3.1 |
| 17 | What is Applet Viewer tool? | 2 | 5 | 2 | 1.3.2 |
| 18 | What is awt? List few controls related to awt. | 2 | 5 | 2 | 1.3.1 |
| 19 | Write and explain the life cycle of an Applet. | 5 | 5 | 2 | 1.3.1 |
| 20 | Differentiate start() and stop() methods in life cycle of applet. | 2 | 5 | 2 | 1.3.1 |

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