

SRM VALLIAMMAI ENGINEERING COLLEGE

SRM Nagar, Kattankulathur– 603203

DEPARTMENT OF INFORMATION TECHNOLOGY

QUESTION BANK



III SEMESTER

CS8392-Object Oriented Programming

Regulation–2017

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SUBJECT : CS8392-Object Oriented Programming

SEM / YEAR: III Sem/ II Year

UNIT I INTRODUCTION TO OOP AND JAVA FUNDAMENTALS			
Object Oriented Programming-Abstraction-objects and classes-Encapsulation- Inheritance-Polymorphism- OOP in Java-Characteristics of Java-The Java Environment- Java Source File - Structure-Compilation. Fundamental Programming Structures in Java-Defining classes in Java-constructors, methods-access specifiers- static members-Comments, Data Types, Variables, Operators, Control Flow, Arrays ,Packages-Java Documents			
PART – A			
Q.No.	Questions	BT Level	Competence
1	Define Objects and classes in java	BTL1	Remembering
2	Name the types of Array	BTL1	Remembering
3	List any four java Doc comments	BTL1	Remembering
4	Define access specifier? give example	BTL1	Remembering
5	Define objects and object variable	BTL1	Remembering
6	What is the need of overloaded constructors	BTL1	Remembering
7	Describe default constructor	BTL2	Understanding
8	Express what is meant by java package	BTL2	Understanding
9	Enumerate two situations in which static methods are used	BTL2	Understanding
10	Express what is the default access to a member in a class	BTL2	Understanding
11	Illustrate with example how to import a single package?	BTL3	Applying
12	Show could Java classes direct program messages to the system console, but error messages, say to a file	BTL3	Applying
13	Demonstrate private access specifier	BTL3	Applying
14	Differentiate procedural Vs Object - oriented Programming	BTL4	Analyzing
15	Explain the features of Java	BTL4	Analyzing
16	Can an inner class declared inside of a method access local variables of this method?	BTL4	Analyzing
17	Justify what is the need for javadoc multiline comments	BTL5	Evaluating
18	Conclude what can go wrong if you replace &&with &in the following code: String a=null;if (a!=null && a.length()>10) {...}	BTL5	Evaluating
19	Consider a loan processing system in a Bank. Identify the classes and objects in system and list them	BTL6	Creating
20	Generalize the ways by which the members of a package can be accessed by other package?	BTL6	Creating

PART –B			
1	Explain the types of package with its importance(13)	BTL1	Remembering
2	i. What is method? How method is defined? give example(6) ii. State the purpose of finalize() method in java? With an example explain how finalize() method can be used in java program(7)	BTL1	Remembering
3	i. What is class? How do you define a class in java(6) ii. Define Package? How does compiler locate packages? Explain arrays in java?(7)	BTL1	Remembering
4	i. Explain the features of Java and list out the characteristics of JAVA(7) ii. Explain the characteristics of OOPs(6)	BTL1	Remembering
5	Summarize the types of constructors supported by JAVA with example.(13)	BTL2	Understanding
6	i. Discuss the usage of constructor with an example using java(7) ii. Explain the object constructors and calling other constructor with example(6)	BTL2	Understanding
7	With relevant examples describe abstraction and encapsulation. Write a java program that uses an abstraction and encapsulation.(13)	BTL2	Understanding
8	Illustrate what is polymorphism? Write a java program that implements Polymorphism. (13)	BTL3	Applying
9	Illustrate with an example the following features of constructors: i. Default constructors (2) ii. Parameterized constructor (2) iii. Overloaded constructors(2) iv. A call to another constructor with this operator(2) v. An object initialization block(2) vi. A static initialization block(3)	BTL3	Applying
10	i. Illustrate OOPS and explain the features of OOPS (7) ii. Demonstrate the static fields and methods used in java (6)	BTL3	Applying
11	i. Distinguish argument and parameter? Discuss with example(7) ii. Differentiate constructor and method with example(6)	BTL4	Analyzing
12	Difference between OOPS and procedural programming language(13)	BTL4	Analyzing
13	Assess the different methods in java.Util. Arrays class with example(13)	BTL5	Evaluating
14	Create a Java program for push and pop operations in stack using arrays in classes and object.(13)	BTL6	Creating
PART – C			
1	Write a program to perform the following functions using classes, objects, constructors and destructors where essential i. Get as input the marks of 5students in 5 subjects (5) ii. Calculate the total and average (5) iii. Print the formatted result on the screen (5)	BTL5	Evaluating

2	Make a class Student. The Student class has data members such a sroll number, name, branch. Create a class called Exam that has data members roll number and six subject marks. Derive the result class from Student and Exam it has own data members such a total mark, and result. Write a Java program to model the relationships.(15)	BTL6	Creating
3	Create a java program to find a smallest number in the given array by Creating one dimensional array and two dimensional array using new operator.(15)	BTL6	Creating
4	i. Write a Java program to Evaluate the following series 1-2+3-4+...+n .(8) ii. Write a Java program to test the prime numbers between the given two limits(7)	BTL5	Evaluating

UNIT II INHERITANCE AND INTERFACES

Inheritance– Super classes- subclasses–Protected members–constructors in subclasses- the Object class–abstract classes and methods- final methods and classes–Interfaces –defining an interface, implementing interface, differences between classes and interfaces and extending interfaces-Object cloning-inner classes, Array Lists- Strings

PART – A

Q.No.	Question	BT Level	Competence
1	Define inheritance hierarchy. Give an example	BTL1	Remembering
2	How will you define an interface in java program	BTL1	Remembering
3	What is meant by abstract classes	BTL1	Remembering
4	What is object cloning	BTL1	Remembering
5	Define static inner classes	BTL1	Remembering
6	What is class hierarchy? Give example	BTL1	Remembering
7	In java describe the use of Interfaces?	BTL2	Understanding
8	Describe the purpose of the keyword “final”	BTL2	Understanding
9	Summarize static binding(early binding) and dynamic binding(late binding)	BTL2	Understanding
10	Describe wrapper classes? Why the wrapper classes are defined as Final	BTL2	Understanding
11	Show how to prevent inheritance	BTL3	Applying
12	Demonstrate the conditions to be satisfied while declaring abstract Classes	BTL3	Applying
13	Illustrate the usage of super keyword?	BTL3	Applying
14	Differentiate shallow and deep copy in object cloning	BTL4	Analyzing
15	Distinguish between copying and cloning	BTL4	Analyzing
16	Assess how to reverse Array List in Java	BTL4	Analyzing
17	Deduce the meaning for the keywords : final, finally, finalize	BTL5	Evaluating
18	In how many ways you can create string objects in java	BTL5	Evaluating

19	Create a java program to remove all white spaces from a string in java	BTL6	Creating
20	If ObjA1 is an object of a classA created using new keyword, what does the statement A ObjA2=ObjA1;mean?	BTL6	Creating
PART – B			
1	Define Inheritance? With diagrammatic illustration and java programs illustrate the different types of inheritance.(13)	BTL1	Remembering
2	What is interface? Write a java program to illustrate the use of interface. (13)	BTL1	Remembering
3	Write briefly on Abstract classes with an example.(13)	BTL1	Remembering
4	List the type of constructors and the concept of destructor with Example(13)	BTL1	Remembering
5	Describe the sophisticated layout management in user interface component with example(13)	BTL2	Understanding
6	i. Explain the function of object wrapper and auto boxing with suitable example (8) ii. State the design hints for inheritance(5)	BTL2	Understanding
7	Summarize the concept of supper classes and sub classes(13)	BTL2	Understanding
8	Illustrate briefly about final methods and classes(13)	BTL3	Applying
9	i. Demonstrate any six methods available in the String Buffer class(7) ii. What is meant by object cloning? Explain it with an example(6)	BTL3	Applying
10	i. How to define an interface? Why do the members of interface are static and final?(7) ii. Explain about inner classes and its types with examples(6)	BTL4	Analyzing
11	Explain the concept of object cloning and inner classes with examples(13)	BTL4	Analyzing
12	i. Differentiate arrays and strings(7) ii. Write a java program to find the given string is palindrome or not (6)	BTL4	Analyzing
13	Write a Java program to create a student examination database system that prints the mark sheet of students. Input student name, marks in 6 subjects. This mark should be between and 100. If the average of marks is ≥ 80 then prints Grade 'A', If the average is <80 and ≥ 60 then prints Grade 'B'. If the average is <60 and ≥ 40 then prints Grade 'C' else prints Grade 'D'.(13)	BTL5	Evaluating
14	Declare an abstract class to represent a bank account with data members name, account number, address and abstract methods withdraw and deposit. Method display() is needed to show balance. Derive a subclass Savings Account and add the following details: return on investment and the method calcAmt() to show the amount in the account after 1 year. Create instance of Savings Account and show the use of with draw and deposit abstract methods.(13)	BTL6	Creating
PART – C			

1	Create a static Inner class called Pair which has Min Max method for finding min and max values from the array(15)	BTL6	Creating
2	Develop an Employee class which implements the Comparable and Cloneable interfaces. Implement the sorting of persons (based on name in alphabetical).Also implement the shallow copy(for name and age) and deep copy (for Date Of Joining)(15)	BTL5	Evaluating
3	Develop an Interest interface which contains simple Interest and compInterestmethodsandstaticfinalfieldofRate25%.Writeaclass to implement those methods(15)	BTL5	Evaluating
4	Create a abstract Reservation class which has Reserve abstract method. Implement the sub-classes like Reserve Train and Reserve Bus classes and implement the same(15)	BTL6	Creating

UNIT III EXCEPTION HANDLING AND I/O

Exceptions-exception hierarchy-throwing and catching exceptions–built-inexceptions, creating own exceptions, Stack Trace Elements. Input/Output Basics–Streams–Byte streams and Character streams–Reading and Writing Console–Reading and Writing Files

PART – A

Q.No.	Question	BT Level	Competence
1	List the different ways to handle exceptions	BTL1	Remembering
2	Examine the purpose of the finally clause of a try-catch-finally statement	BTL1	Remembering
3	Tell the use of assert keyword	BTL1	Remembering
4	Define a file? Why do we require files to store data	BTL1	Remembering
5	Whatisthebasicdifferencebetweenthe2approachestoexception handling	BTL1	Remembering
6	What if there is a break or return statement in try block followed by finally block	BTL1	Remembering
7	Summarize output streams and input streams in Java	BTL2	Understanding
8	Describe runtime exceptions	BTL2	Understanding
9	Interpret Checked and UnChecked Exception	BTL2	Understanding
10	Give any two methods available in stack tree element	BTL2	Understanding
11	Is it necessary that each try block must be followed by a catch block	BTL3	Applying
12	How are the stream classes classified	BTL3	Applying
13	Show how Java handle integer overflows and underflows	BTL3	Applying
14	State the difference between an exception and error	BTL4	Analyzing
15	Compare Input stream and Reader classes	BTL4	Analyzing
16	Classify the basic difference between the two approaches to exception handling.	BTL4	Analyzing
17	Does it matter in what order catch statements for FileNotFoundException and IOException are written?	BTL5	Evaluating

18	Decide What type of exception must be explicitly declared in a throws clause of a method?	BTL5	Evaluating
19	Write a java program to read the file contents	BTL6	Creating
20	Create a Random Access file stream for the file “student.dat” for uploading the student information in the file	BTL6	Creating
PART – B			
1	Define exception. Why it is needed? Explain the different types of exceptions and the exception hierarchy with appropriate examples using Java(13)	BTL1	Remembering
2	What is mean by filter stream? Explain with examples(13)	BTL1	Remembering
3	Explain briefly about user defined exceptions and the concept of throwing and catching exception in java with examples(13)	BTL1	Remembering
4	What are input and output streams? Explain them with illustrations(13)	BTL1	Remembering
5	Describe the stack trace elements with an example(13)	BTL2	Understanding
6	Summarize the concept of streams and stream classes and their classification(13)	BTL2	Understanding
7	Express the most commonly used classes for handling i/o related exceptions(13)	BTL2	Understanding
8	How exceptions are handled in Java? Explain the important methods used to handle exception(13)	BTL3	Applying
9	While reading a file how would you check whether you have reached the end of the file(13)	BTL3	Applying
10	Explain how to handle arithmetic exception by giving a suitable example(13)	BTL4	Analyzing
11	Differentiate byte stream and character stream with necessary examples(13)	BTL4	Analyzing
12	Explain the importance of try- catch block with example(13)	BTL4	Analyzing
13	Evaluate a try block that is likely to generate three types of exception and then incorporate necessary catch blocks and handle them appropriately(13)	BTL5	Evaluating
14	Create a new directory by using File object? (13)	BTL6	Creating
PART – C			
1	Why only read() method sin Byte Array Input Stream does not throw IO Exception? (15)	BTL6	Creating
2	How does Input Stream. read() method work? Can you give me some sample code? (15)	BTL6	Creating
3	There are three statements in a try block–statement 1,statement 2and Statement 3.After that there is a catch block to catch the exceptions occurred in the try block. Assume that exception has occurred in statement2. Does statement3 get executed or not? (15)	BTL5	Evaluating

4	Why it is always recommended that clean up operations like closing the DB resources to keep inside a finally block?(15)	BTL5	Evaluating
UNIT IV MULTITHREADING AND GENERIC PROGRAMMING			
Differences between multi-threading and multitasking, thread lifecycle, creating threads, synchronizing threads, Inter-thread communication, daemon threads, thread groups. Generic Programming–Generic classes–generic methods–Bounded Types–Restrictions and Limitations			
PART – A			
Q.No.	Question	BT Level	Competence
1	Identify the different states in thread	BTL1	Remembering
2	What do you mean by threads in Java	BTL1	Remembering
3	Define multithreading	BTL1	Remembering
4	List out the motivation needed in generic programming	BTL1	Remembering
5	Tell the methods of executors	BTL1	Remembering
6	What is meant by notify methods in multithreading	BTL1	Remembering
7	Describe synchronization in respect to multithreading	BTL2	Understanding
8	Summarize generic classes with example	BTL2	Understanding
9	Express the need for generic code?	BTL2	Understanding
10	Describe life cycle of thread	BTL2	Understanding
11	Demonstrate how do we set priorities for threads	BTL3	Applying
12	How to start a thread	BTL3	Applying
13	Show how the inter thread communication is done	BTL3	Applying
14	Who wants to be generic programmer	BTL4	Analyzing
15	Assess how will interrupt threads in multiple windows	BTL4	Analyzing
16	Thread is a light weight process. Comment on this statement.	BTL4	Analyzing
17	Assess why do we need run() and start() method both? Can we achieve it with only run method?	BTL5	Evaluating
18	Why separate wait and sleep methods used in java programming?	BTL5	Evaluating
19	Develop java interface must be implemented by all threads	BTL6	Creating
20	Generalize some real life situations that illustrate the use of multithreading	BTL6	Creating
PART – B			
1	List the two ways of implementing threads with example(13)	BTL1	Remembering
2	Label the different states of a thread and explain it(13)	BTL1	Remembering
3	Define the concept of Generic Type Information in virtual machine(13)	BTL1	Remembering
4	Tell briefly about reflection and generics. Give an example(13)	BTL1	Remembering

5	What is a thread? Describe the life cycle and states of thread with examples. (13)	BTL2	Understanding
6	Discuss about translating generic expressions and calling legacy code(13)	BTL2	Understanding
7	Summarize briefly about thread synchronization with an example(13)	BTL2	Understanding
8	Demonstrate Inter thread Communication and suspending, resuming and stopping threads(13)	BTL3	Applying
9	Show how to extend thread class and how to implement runnable interface for creating and starting threads? (13)	BTL3	Applying
10	Classify the generics in java with example(13)	BTL4	Analyzing
11	Explain the task for running a task in a separate thread and running Multiple threads(13)	BTL4	Analyzing
12	i. Mention the motivations of generic programming.(7) ii. Explain briefly about generic classes and methods in Java programming(6)	BTL4	Analyzing
13	Evaluate how generic methods and generic expressions are translated(13)	BTL5	Evaluating
14	Design two threads to display odd numbered element in an array of size 50 and even numbered element in another array of size 50.Create instances of the above thread and run them(13)	BTL6	Creating

PART – C

1	Create a bank database application program to illustrate the use of Multithreads(15)	BTL6	Creating
2	To avoid deadlock in Java where N threads are accessing N shared resources : Conclude.(15)	BTL5	Evaluating
3	Evaluate which one is better to implement thread in Java ?extending Thread class or implementing Runnable?(15)	BTL5	Evaluating
4	Define an exception called “NoMatchException” that is thrown when a string is not equal to “India”. Create a program that uses this exception (15)	BTL6	Creating

UNIT V EVENT DRIVEN PROGRAMMING

Graphics programming- Frame-Components- working with 2 D shapes-Using color, fonts, and images-Basics of event handling –event handlers –adapter classes-actions-mouse events-AWT event hierarchy-Introduction to Swing–layout management –Swing Components–Text Fields, Text Areas–Buttons-Check Boxes–Radio Buttons–Lists-choices-Scrollbars–Windows–Menus–Dialog Boxes.

PART – A

Q.No.	Question	BT Level	Competence
1	List the situation in which an action event and item event is generated?	BTL1	Remembering
2	Name the Listener methods that must be implemented for the Key Listener interface	BTL1	Remembering
3	What are the steps needed to show a Frame	BTL1	Remembering

4	Define JPanel object	BTL1	Remembering
5	Mention any four event names of a button component	BTL1	Remembering
6	What is meant by window adapter classes	BTL1	Remembering
7	Write syntax of draw image() and copy Area() methods	BTL2	Understanding
8	Write syntax to handle two mouse events	BTL2	Understanding
9	Describe AWT in Java	BTL2	Understanding
10	Summarize the function of (a) Set Layout and (b) Flow Layout	BTL2	Understanding
11	How are frames created in Java	BTL3	Applying
12	How do you manage the color and font of a graphics in applet	BTL3	Applying
13	Show the value for the following predefined actions. a. SMALL-ICON b. MNEMONIC-KEY	BTL3	Applying
14	Distinguish swing and AWT	BTL4	Analyzing
15	Explain four swing components with proper syntax	BTL4	Analyzing
16	Differentiate GridBagLayout from GridLayout	BTL4	Analyzing
17	Evaluate the relationship between event sources and listeners	BTL5	Evaluating
18	Assess the methods under Window Listener Interface	BTL5	Evaluating
19	Create the simple program that displays an empty frame on the screen	BTL6	Creating
20	Code the Graphics method in java to draw the String "HelloWorld" From the coordinates(100,200)	BTL6	Creating
PART – B			
1	i. What is layout management? What is the function of Layout manager? (7) ii. What is the process of setting the layout manager(6)	BTL1	Remembering
2	Write a program to include the Internal Frame in Swing(13)	BTL1	Remembering
3	List the methods available to draw shapes and COLOR(13)	BTL1	Remembering
4	State and Explain the basic of AWT Event handling in detail(13)	BTL1	Remembering
5	Describe in detail about the different layout in Java GUI. Which layout is the default one? (13)	BTL2	Understanding
6	Summarize the following in detail: Model, view and controller design pattern with respect to Swing in Java. How MVC design pattern is achieved? (13)	BTL2	Understanding
7	Discuss mouse listener and mouse motion listener. Give an example program(13)	BTL2	Understanding
8	Demonstrate the Characteristics of model view Controller design patterns and its advantages(13)	BTL3	Applying
9	Illustrate the usage of special fonts for text in graphics programming(13)	BTL3	Applying

10	i. Classify the classes under 2D shapes (7) ii. Explain the Swing components in detail(6)	BTL4	Analyzing
11	i. Infer JList and JComboBox with an example(7) ii. Compare check boxes and radio buttons with an example(6)	BTL4	Analyzing
12	i. Describe the AWT event hierarchy(6) ii. Discuss the adapter classes using example(7)	BTL4	Analyzing
13	i. Recommend when should we use an event adapter class (7) ii. Assess what are the different components that are used to show a container (6)	BTL5	Evaluating
14	Write a program for a simple calculator using swing(13)	BTL6	Creating
PART – C			
1	i. Write a program to use setBounds() method.(8) ii. Create a program use of BorderLayout (7)	BTL6	Creating
2	Which method do you use to enable and disable components such as JButtons? What class is it defined in?(15)	BTL5	Evaluating
3	i. Which Swing components use ListSelectionModel? [Hint: The “Use” link at the top of the specification for each interface and class takes you to a page showing where in the API that interface or class is referenced.] (8) ii. Do those components use any other models to handle other aspects of the components’ state? If so, list the other models’ types (7)	BTL5	Evaluating
4	Code a java program to implement the following: Create four check boxes. The initial state of the first box should be in checked state. The status of each check box should be displayed. When we change the state of a check box, the status should be display is updated(15)	BTL6	Creating