INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal, Hyderabad - 500 043

INFORMATION TECHNOLOGY

DEFINITIONS AND TERMINOLOGY

Course Name	:	OBJECT ORIENTED PROGRAMMING THROUGH JAVA
Course Code	:	ACS003
Program	:	B.Tech
Semester	:	IV
Branch	:	Information Technology
Section	:	A,B
Academic Year	:	2018– 2019
Course Faculty	:	Mr. E Sunil Reddy, Assistant Professor, Dept. of IT Mr. G Chandra Sekhar, Assistant Professor, IT

OBJECTIVES

I	To help students to consider in depth the terminology and nomenclature used in the syllabus.
II	To focus on the meaning of new words / terminology/nomenclature

DEFINITIONS AND TERMINOLOGYQUESTION BANK

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
		UNIT - I			
1	What are the Concepts of OOPs?	1. Class 2.Object 3. Data abstraction 4. Data encapsulation 5. Inheritance 6. Polymorphism 7. Dynamic binding	Understand	CLO1	CACS003.01
2	What is an Object?	Objects have states and behaviors. Example: A dog has states - color, name, breed as well as behaviors – wagging the tail, barking, eating. An object is an instance of a class.	Understand	CLO2	CACS003.02
3	Define Class?	A class can be defined as a template/blueprint that describes the behavior/state that the objects of its type support.	Remember	CLO2	CACS003.02
4	Explain Data Abstraction?	It refers to, providing only essential information to the outside world and hiding their background details. For example, a web server hides how it processes data it receives, the end user just hits the endpoints and gets the data back.	Remember	CLO1	CACS003.01
4	Define Data Encapsulation?	Encapsulation is a process of binding data members (variables, properties) and member functions (methods) into a single unit. It is also a way of restricting access to certain properties or component. The best example for encapsulation is a class.	Remember	CLO1	CACS003.01
5	Define java Features?	1. Simple 2. Secure 3.Platform independent 4.Object oriented 4. Distributed 5. Portable 6.Highperformance7.Robust 8. Multithreaded 9. Interpreted 10. Dynamic	Remember	CLO2	CACS003.02
6	What is Java Virtual machine (JVM)?	JVM (Java Virtual Machine) is an abstract machine. It is a specification that provides runtime environment in which java bytecode can be executed. JVMs are available for many hardware and software platforms (i.e. JVM is platform dependent).	Understand	CLO3	CACS003.03
7	Define Operator. And list out the operators in JAVA?	Operator in java is a symbol that is used to perform operations. For example: +, -, *, / etc.Categories of operators are as follows: 1. Arithmetic operators 2. Logical operators 3. Relational operators 4. Assignment operators 5. Conditional operators 6. Increment and decrement operators 7. Bit wise operators.	Remember	CLO2	CACS003.02
8	Define Method Overloading?	Method overloading means method name will be same but each method should be different parameter list.	Remember	CLO4	CACS003.04
9	Explain call by Value?	There is only call by value in java. If we call a method passing a value, it is known as call by value. The changes being done in the called method, is not affected in the calling method.	Remember	CLO3	CACS003.03
10	Explain Scope and Life Time of Variables?	The scope of avariable defines the section of the code in which thevariable is visible. As a general rule, variables that are defined within a block are not accessible outside that block. The lifetime of a variable refers to how long the variable exists before it is destroyed.	Remember	CLO2	CACS003.02

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
12	Define Array?	Array is a collection of similar type of elements. Using arrays the elements that are having the same data type can be grouped together. If we use bunch of variables instead of arrays, then we have to use large number of variables. Declaring and handling large number of variables is very inconvenient for developers.	Remember	CLO3	CACS003.03
13	Explain Constructors?	The constructor is a specialized method used for initializing the objects. Note that the name of the constructor and the name of the class must be same. The constructor is invoked whenever an object of its associated class is created. it is called constructor.	Understand	CLO4	CACS003.04

14	Define JAVA programming structure?	Documentation section
		Package statements section
		Import statements section
		Class Definition
		Main Method class
		{
		  Public static void main(String[] args)
		  {
		    // main method definition
		  }
		}
			Remember	CLO3	CACS003.03

15	Define variable?	A variable is an identifier that denotes the storage location. Variable is a fundamental unit of storage in java. The variables are used in combination with identifiers, data types, operators and some values for initialization. The syntax of variable declaration will be- data_typename_of_variable[=initialization][,=initialization][,…..];	Remember	CLO3	CACS003.03
16	Explain constants. And list out types of constants?	Constants mean the fixed values that do not change during the execution of a program. 1. Numeric constants 2. Integer constants-Decimal integer, octal integer and Hexadecimal integer constants. 3. Character constants. 4. String constants.	Remember	CLO2	CACS003.02
17	What are the data types used in JAVA?	Various data types used in JAVA are Byte, Short, int, long, char, float, double and Boolean.	Understand	CLO3	CACS003.03
18	Explain Enumerated Types?	An enum type is a special data type that enables for a variable to be asset of predefined constants. The variable must be equal to one of the values that have been predefined for it.in JAVA the enumeration is created using the enum keyword.	Understand	CLO3	CACS003.03
19	What are the control flow statements and loops?	1. if statement 2.if else statement 3. While statement 4. Do…while statement. 5. Switch case statement 6. For loop.	Understand	CLO5	CACS003.05
20	Explain overloading methods?	Overloading is a mechanism in which we can use many methods having the same function name but can pass different number of parameters or different types of parameters.	Remember	CLO4	CACS003.04
21	Explain Recursion	Recursion is a programming technique in which the method calls itself repeatedly. The parameter passed to particular method allows to call itself. Such method called recursive method.	Remember	CLO4	CACS003.04

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
22	What is Abstraction?	The ability to represent a complex reality in terms of a simplified model.	Understand	1	CACS003.01
23	What is Encapsulation?	Encapsulation refers to mechanisms that allow each object to have its own data and methods.	Understand	1	CACS003.01
24	What is Inheritance?	Inheritance refers to the capability of defining a new class of objects that inherits from a parent class.	Understand	1	CACS003.01
25	Define the term Polymorphism?	A programming language's ability to process objects differently depending on their data type or class.	Remember	1	CACS003.01
26	Write about class.	A class is a collection of data and methods that operate on that data. An object is defined by a class.	Remember	2	CACS003.02
27	What is identifier?	An identifier is a sequence of characters that consist of letters, digits, underscores (_), and dollar signs ($).	Understand	2	CACS003.02
28	Define type conversion and casting.	**Type Conversion** is that which converts the one data type into another. When a user can convert the one higher data type into lower data type then it is called as the **type casting.**	Remember	2	CACS003.02
29	What is variable?	A variable is a name for a location in memory used to hold a data value.	Understand	2	CACS003.02
30	What are enumerated types?	An enumerated type is a data type consisting of a set of named values called elements, members, enumeral, or enumerators of the type.	Understand	2	CACS003.02
31	Define the term array.	A collection of data items, all of the same type, in which each item's position is uniquely designated by an integer.	Remember	2	CACS003.02
32	What are constructors in Java?	A constructor is a special method of a class or structure in object-oriented programming that initializes an object of that type.	Understand	3	CACS003.03
33	What is the use of this keyword.	**this** is a reference variable in Java that refers to the current object. The various usages of 'this' keyword in Java are as follows: • It can be used to refer instance variable of current class. It can be used to invoke or initiate current class constructor.	Understand	3	CACS003.03
34	Define the usage of garbage collection with the garbage collector.	Garbage Collector is a program that manages memory automatically wherein de-allocation of objects is handled by Java rather than the programmer. There is no explicit need to destroy an object as Java handles the de-allocation automatically.	Remember	3	CACS003.03
35	Why is String class considered immutable?	String is a sequence of characters, for e.g. "Hello" is a string of 5 characters. String is an immutable object which means it is constant and can cannot be changed once it has been created.	Remember	3	CACS003.03
36	What is Method Overloading?	Method Overloading is a feature that allows a class to have more than one method having the same name, if their argument lists are different	Understand	4	CACS003.04

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
		UNIT – II			
1	Define Inheritance?	Inheritance means taking some properties from the parents. In JAVA inheritance means derived class borrows some properties of base class. At the same time derived class may have some additional properties. The old class is called the base class and the generated class which is generated from the old class is called the derived class. The inheritance can be achieved by incorporating the definition of one class into another, using the keyword extends.	Remember	CLO5	CACS003.05
2	What are the types of inheritances?	1. Single inheritance 2. Multiple inheritance 3. Multilevel inheritance 4.Hybrid inheritance	Understand	CLO5	CACS003.05
3	Define super and sub classes?	In the JAVA the class which is inherited is called the super class and the class that does the inheriting is called subclass. The sub class is a specialized version of the super class. The subclass uses some properties of super class along with its own properties. The subclass is also called as child class or derived class. The super class is also called as parent class or the base class.	Remember	CLO6	CACS003.06
4	Explain Member access rules?	Access modifiers control access to data fields, methods and classes. There are three modifiers used in java 1. Public 2. Private 3. Default modifier. **Public:** Allows classes, methods and data fields accessible from any class. **Private**: Allows classes, methods and data fields accessible only from within the own class. **Protected**: Mode is another access specifier which is used in inheritance. The protected mode allows accessing the members to all the classes and subclasses in the same package	Understand	CLO6	CACS003.06
5	Explain how to call super class constructor?	A subclass can invoke the constructor method defined by the super class. syntax for the super class will be Super();	Understand	CLO3	CACS003.03
6	Explain Run time polymorphism?	The run time polymorphism is also called as dynamic method dispatch. During the run time polymorphism a call to overridden method is resolved at run time. The overridden method is called using the reference variable of a super class (or base class).	Understand	CLO7	CACS003.07
7	Define Dynamic Binding?	Dynamic binding is a run time determination of which function to be called for particular object of descendant class.	Remember	CLO7	CACS003.07
8	Define Method Overriding?	Method Overriding is a mechanism in which a subclass inherits the methods of super class and sometimes the sub class modifies the implementation of a method defined in super class.	Remember	CLO4	CACS003.04
9	Define Abstract class?	A class which is declared with the abstract keyword is known as an abstract class in Java. It can have abstract and non-abstract methods (method with the body).	Remember	CLO6	CACS003.06
10	Explain interfaces vs abstract classes	**Abstract classes** **Interfaces**	Understand	CLO6	CACS003.06

S No	QUESTION	ANSWER		Blooms Level	CLO	CLO Code
		1. Abstract class can have abstract and non-abstract methods.	1. Interface can have only abstract methods. Since Java, it can have default and static methods also.			
		2. Abstract class doesn't support multiple inheritances.	2.Interface Supports multiple inheritances.			
		3. Abstract class can have final, non-final, static and non-static variables.	3. Interface has only static and final variables.			
		4. Abstract class can provide the implementation of interface.	4. Interface can't provide the implementation of abstract class.			
11	What is an interface?	An interface in java is a blueprint of a class. It has static constants and abstract methods. The interface in Java is a mechanism to achieve abstraction. There can be only abstract methods in the Java interface, not method body. It is used to achieve abstraction and multiple inheritances in Java.		Remember	CLO6	CACS003.06
12	Explain how to define a package?	A Package can be defined as a grouping of related types (classes, interfaces, enumerations and annotations) providing access protection and namespace management. Some of the existing packages in Java are − java.lang − bundles the fundamental classes java.io − classes for input , output functions are bundled in this package		Understand	CLO8	CACS003.08
13	Define Inheritance?	The ability to create a new class from an existing class is called Inheritance. Using inheritance, we can create a Child class from a Parent class such that it inherits the properties and methods of the parent class and can have its own additional properties and methods. For example, if we have a class Vehicle that has properties like Color, Price, etc, we can create 2 classes like Bike and Car from it that have those 2 properties and additional properties that are specialized for them like a car has numberOfWindows while a bike cannot. Same is applicable to methods.		Remember	CLO5	CACS003.05
14	Define Polymorphism?	The word polymorphism means having many forms. Typically, polymorphism occurs when there is a hierarchy of classes and they are related by inheritance. C++ polymorphism means		Remember	CLO7	CACS003.07

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
		that a call to a member function will cause a different function to be executed depending on the type of object that invokes the function.			
15	What is a class path in java?	Classpath is system environment variable used by the Java compiler and JVM. Java compiler and JVM is used Classpath to determine the location of required class files. C:\Program Files\Java\jdk1.6.0\bin	Remember	CLO9	CACS003.09
16	What is super and sub class?	**super class** A class from which a particular class is derived, perhaps with one or more classes in between. **subclass** A class that is derived from a particular class, perhaps with one or more classes in between..	Understand	5	CACS003.05
17	When super keyword is used?	If the method overrides one of its superclass's methods, overridden method can be invoked through the use of the keyword super. It can be also used to refer to a hidden field.	Remember	5	CACS003.05
18	What is multiple inheritance?	If a child class inherits the property from multiple classes is known as multiple inheritance. Java does not allow to extend multiple classes.	Understand	5	CACS003.05
19	What is the use of 'final' keyword in java?	**Final** is used to apply restrictions on class, method and variable. Final class can't be inherited, final method can't be overridden and final variable value can't be changed	Remember	6	CACS003.06
20	What do you mean by Object?	Object is a runtime entity and it's state is stored in fields and behavior is shown via methods.	Remember	7	CACS003.07
21	What are wrapper classes?	Wrapper classes converts the java primitives into the reference types (objects). Every primitive data type has a class dedicated to it	Remember	7	CACS003.07
22	What is the difference between equals() and == ?	**Equals()** method is defined in Object class in Java and used for checking equality of two objects defined by business logic. "==" or equality operator in Java is a binary operator provided by Java programming language and used to compare primitives and objects.	Remember	7	CACS003.07
23	What are abstract classes?	A class that contains one or more abstract methods , and therefore can never be instantiated. Abstract classes are defined so that other classes can extend them and make them concrete by implementing the abstract methods.	Understand	6	CACS003.06
24	When Abstract methods are used?	If you want a class to contain a particular method but you want the actual implementation of that method to be determined by child classes, you can declare the method in the parent class as abstract.	Understand	6	CACS003.06
25	Define the term 'overriding'.	Overriding, sub class have the same method with same name and exactly the same number and type of parameters and same return type as a super class.	Remember	7	CACS003.07
26	What is dynamic binding?	Connecting a method call to the method body is known as binding. When the type of the object is determined at run-time, it is known as dynamic binding.	Remember	7	CACS003.07
27	What is an Interface?	An interface is a collection of abstract methods. A class implements an interface, thereby inheriting the abstract methods of the interface.	Understand	6	CACS003.06
28	Give some features of Interface?	It includes:	Understand	6	CACS003.06

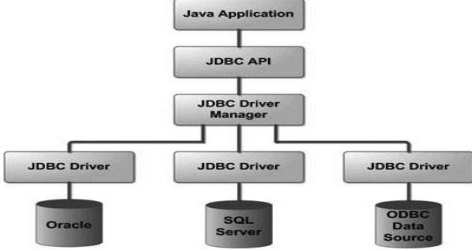| S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
		• Interface cannot be instantiated • An interface does not contain any constructors. All of the methods in an interface are abstract.			
29	Define Packages in Java?	A Package can be defined as a grouping of related types(classes, interfaces, enumerations and annotations) providing access protection and name space management.	Remember	8	CACS003.08
30	Why Packages are used in java?	Packages are used in Java in-order to prevent naming conflicts, to control access, to make searching/locating and usage of classes, interfaces, enumerations and annotations, etc., easier.	Remember	8	CACS003.08
		UNIT – III			
1	What are the benefits of exception handling in java	1. Separating Error-Handling Code from "Regular" Code 2. Propagating Errors Up the Call Stack 3. Grouping Error Types and Error Differentiation	Remember	CLO10	CACS003.10
2	Define an exception hierarchy system?		Understand	CLO10	CACS003.10
3	Define checked exceptions?	The classes which directly inherit Throw able class except RuntimeException and Error are known as checked exceptions e.g. IOException, SQLException etc. Checked exceptions are checked at compile-time.	Understand	CLO10	CACS003.10
4	Define unchecked exceptions?	The classes which inherit RuntimeException are known as unchecked exceptions e.g. Arithmetic Exception, NullPointer Exception, and ArrayIndex outOfBoundsException etc. Unchecked exceptions are not checked at compile-time, but they are checked at runtime.	Understand	CLO10	CACS003.10
5	Explain Try in JAVA?	Java **try** block is used to enclose the code that might throw an exception. It must be used within the method.	Remember	CLO10	CACS003.10

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
		If an exception occurs at the particular statement of try block, the rest of the block code will not execute. So, it is recommended not to keeping the code in try block that will not throw an exception. Java try block must be followed by either catch or finally block.			
6	Explain Catch block in JAVA?	Java catch block is used to handle the Exception by declaring the type of exception within the parameter. The declared exception must be the parent class exception (i.e., Exception) or the generated exception type. However, the good approach is to declare the generated type of exception.	Remember	CLO10	CACS003.10
7	Explain finally in JAVA?	**Java finally block** is a block that is used *to* execute importantcode such as closing connection, stream etc. Java finally block is always executed whether exception is handled or not. Java finally block follows try or catch block.	Remember	CLO10	CACS003.10
8	Explain multithreading in java?	**Multithreading in java** is a process of executing multiple threads simultaneously. However, we use multithreading than multiprocessing because threads use a shared memory area. They don't allocate separate memory area so saves memory, and context-switching between the threads takes less time than process.	Understand	CLO11	CACS003.11
9	Explain Thread in JAVA?	A thread is a lightweight sub process, the smallest unit of processing. It is a separate path of execution.	Understand	CLO11	CACS003.11
10	Explain Differences between multiple processes and multiple threads?	<table><tr><th>Multithreading</th><th>Multiprocessing</th></tr><tr><td>1.Thread is a fundamental unit of multithreading</td><td>1. Program or process is a fundamental unit of multiprocessing environment.</td></tr><tr><td>2. Multiple parts of single program get executed in multithreading environment.</td><td>2.Multiple program get executed in multiprocessing environment.</td></tr><tr><td>3.During multithreading the processor switches between multiple threads of the program.</td><td>3.During multiprocessing the processor switches between multiple programs or processes.</td></tr><tr><td>4.It is cost effective because CPU can be shared</td><td>4. It is expensive because when a particular process uses</td></tr></table>	Understand	CLO11	CACS003.11

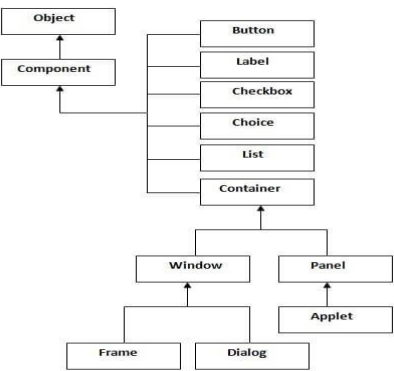| S No	QUESTION	ANSWER		Blooms Level	CLO	CLO Code
		among multiple threads at a time.	CPU other process has to wait.			
12	What are the thread states in java?	**Thread** always exists any one of the following states 1.New 2.Runnable 3.Blocked 4.Waiting 5.Timed Waiting 6.Terminated		Remember	CLO11	CACS003.11
13	Explain how to create the threads?	There are two ways to create a thread: 1.By extending Thread class 2. By implementing Runnable interface. **Thread class:** Thread class provides constructors and methods to create and perform operations on a thread.Thread class extend Object class and implements Runnable interface. Runnable interface:The Runnable interface should be implemented by any class whose instances are intended to be executed by a thread. Runnable interface have only one method named run().		Understand	CLO11	CACS003.11
14	Define Interrupting Thread?	If any thread is in sleeping or waiting state (i.e. sleep() or wait() is invoked), calling the interrupt() method on the thread, breaks out the sleeping or waiting state throwing InterruptedException. If the thread is not in the sleeping or waiting state, calling the interrupt () method performs normal behavior and doesn't interrupt the thread but sets the interrupt flag to true. Let's first see the methods provided by the Thread class for thread interruption.		Understand	CLO11	CACS003.11
15	Explain priority of threads in java?	Each thread has a priority. Priorities are represented by a number between 1 and 10. In most cases, thread scheduler schedules the threads according to their priority (known as preemptive scheduling). But it is not guaranteed because it depends on JVM specification that which scheduling it chooses.		Remember	CLO11	CACS003.11
16	Explain synchronizing threads?	When we start two or more threads within a program, there may be a situation when multiple threads try to access the same resource and finally they can produce unforeseen result due to concurrency issues. For example, if multiple threads try to write within a same file then they may corrupt the data because one of the threads can override data or while one thread is opening the same file at the same time another thread might be closing the same file.		Remember	CLO11	CACS003.11
17	Explain Inter-threaded communication	Interthread communication is important when you develop an application where two or more threads exchange some information. There are three simple methods and a little trick which makes thread communication possible. **wait**() tells calling thread to give up monitor and go to sleep until some other thread enters the same monitor and call notify. **notify**() wakes up a thread that called wait() on same object.		Remember	CLO11	CACS003.11

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
		notifyAll() wakes up all the thread that **called wait()** on same object.			
18	What is an exception?	Exception is an abnormal condition which occurs during the execution of a program and disrupts normal flow of the program. This exception must be handled properly. If it is not handled, program will be terminated abruptly.	Understand	9	CACS003.09
19	How the exceptions are handled in java	Exceptions in java are handled using try, catch and finally blocks.	Understand	10	CACS003.10
20	What is error?	**Errors** are mainly caused by the environment in which an application is running. For example, OutOfMemoryError happens when JVM runs out of memory.	Understand	9	CACS003.09
21	What is the use of 'finally' in exception handling?	Finally is used to place important code, it will be executed whether exception is handled or not	Remember	10	CACS003.10
22	How can you handle Java exceptions?	There are five keywords used to handle exceptions in java: • try • catch • finally • throw throws	Remember	10	CACS003.10
23	What is the purpose of the throw and throws keywords?	**throw keyword** allows us to throw an exception object to interrupt the normal flow of the program. **throws keyword** is used to specify that a method may raise an exception during its execution.	Remember	10	CACS003.10
24	What are checked exceptions in java?	Checked exceptions are the exceptions which are known to compiler. These exceptions are checked at compile time only.	Understand	09	CACS003.09
25	Define the term 'unchecked exceptions'	Unchecked exceptions are those exceptions which are not at all known to compiler. These exceptions occur only at run time.	Understand	09	CACS003.09
26	What is thread?	A thread, is the path followed when executing a program.	Understand	11	CACS003.11
27	What is multithreading?	Multithreading is a process of executing multiple threads simultaneously. Multithreading is used to obtain the multitasking.	Understand	11	CACS003.11
28	Describe the purpose and working of sleep() method.	The sleep() method in java is used to block a thread for a particular time, which means it pause the execution of a thread for a specific time.	Remember	11	CACS003.11

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
29	What is the purpose of wait() method in Java?	The wait() method is provided by the Object class in Java. This method is used for inter-thread communication in Java.	Remember	11	CACS003.11
30	Mention the default thread priorities.	Three types of thread priorities are: 1. MIN_PRIORITY – 1 2. NORM_PRIORITY – 5 3. MAX_PRIORITY - 10	Understand	11	CACS003.11
31	What is synchronization?	Synchronization is the capability to control the access of multiple threads to any shared resource.	Understand	11	CACS003.11
32	What is inter-thread communication?	The process of communication between synchronized threads is termed as inter-thread communication.	Understand	11	CACS003.11
	UNIT - IV				
1	Define streams?	A stream can be defined as a sequence of data. There are two kinds of Streams **Input Stream** – The Input Stream is used to read data from a source. **Output Stream** – The Output Stream is used for writing data to a destination.	Understand	CLO12	CACS003.12
2	Explain character stream?	Java Character streams are used to perform input and output for 16-bit Unicode. Though there are many classes related to character streams but the most frequently used classes are, File Reader and File Writer. Though internally File Reader uses FileInputStream and File Writer uses FileOutputStream but here the major difference is that File Reader reads two bytes at a time and File Writer writes two bytes at a time.	Remember	CLO12	CACS003.12
3	Explain text input/output?	**Output Stream:** Java application uses an output stream to write data to a destination; it may be a file, an array, peripheral device or socket. **Input Stream:** Java application uses an input stream to read data from a source; it may be a file, an array, peripheral device or socket. Let's understand the working of Java Output Stream and Input Stream by the figure given below.	Remember	CLO12	CACS003.12
4	Explain random access file operations?	This class is used for reading and writing to random access file. A random access file behaves like a large array of bytes. There is a cursor implied to the array called file pointer, by moving the cursor we do the read write operations. If end-of-file is reached before the desired number of byte has been read than EOF Exception is thrown. It is a type of IOException.	Understand	CLO14	CACS003.14
5	Explain file management using file class?	The File class is an abstract representation of file and directory pathname. A pathname can be either absolute or relative.	Understand	CLO14	CACS003.14

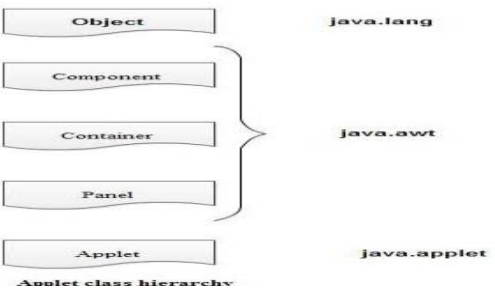| S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
		The File class has several methods for working with directories and files such as creating new directories or files, deleting and renaming directories or files, listing the contents of a directory etc.			
6	DefineConnecting to Database	JDBC stands for Java Database Connectivity. JDBC is a Java API to connect and execute the query with the database. It is a part of JavaSE (Java Standard Edition). JDBC API uses JDBC drivers to connect with the database.	Remember	CLO14	CACS003.14
7	Explain uses of JDBC?	We can use JDBC API to handle database using Java program and can perform the following activities: Connect to the database Execute queries and update statements to the database Retrieve the result received from the database	Understand	CLO14	CACS003.14
8	ExplainJDBC drivers?	JDBC Driver is a software component that enables java application to interact with the database. There are 4 types of JDBC drivers: JDBC-ODBC bridge driver Native-API driver (partially java driver) Network Protocol driver (fully java driver) Thin driver (fully java driver)	Understand	CLO14	CACS003.14
9	Explain byte stream?	Java byte streams are used to perform input and output of 8-bit bytes. Though there are many classes related to byte streams but the most frequently used classes are, FileInputStream and FileOutputStream. Following is an example which makes use of these two classes to copy an input file into an output file.	Understand	CLO12	CACS003.12
10	Explain character streams?	Java Byte streams are used to perform input and output of 8-bit bytes, whereas Java Character streams are used to perform input and output for 16-bit Unicode. Though there are many classes related to character streams but the most frequently used classes are, FileReader and FileWriter.Though internally FileReader uses FileInputStream and FileWriter uses FileOutputStream but here the major difference is that FileReader reads two bytes at a time and FileWriter writes two bytes at a time.	Understand	CLO12	CACS003.12
11	Explain JDBC Architecture?	The JDBC API supports both two-tier and three-tier processing models for database access but in general, JDBC Architecture consists of two layers − JDBC API: This provides the application-to-JDBC Manager connection. JDBC Driver API: This supports the JDBC Manager-to-Driver Connection. The JDBC API uses a driver manager and database-specific drivers to provide transparent connectivity to heterogeneous databases. The JDBC driver manager ensures that the correct driver is used to access each data source. The driver manager is capable of supporting multiple concurrent drivers connected to multiple heterogeneous databases.	Understand	CLO14	CACS003.14

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
12	Explain JDBC Driver Types?	JDBC Driver is a software component that enables java application to interact with the database. There are 4 types of JDBC drivers: 1.JDBC-ODBC bridge driver 2.Native-API driver (partially java driver) 3.Network Protocol driver (fully java driver) 4.Thin driver (fully java driver)	Understand	CLO14	CACS003.14
13	Explain JDBC connection?	JDBC connection is fairly simple. Here are these simple four steps − Import JDBC Packages: Add import statements to your Java program to import required classes in your Java code. Register JDBC Driver: This step causes the JVM to load the desired driver implementation into memory so it can fulfill your JDBC requests. Database URL Formulation: This is to create a properly formatted address that points to the database to which you wish to connect. Create Connection Object: Finally, code a call to the DriverManager object's getConnection( ) method to establish actual database connection.	Understand	CLO14	CACS003.14
14	Explain differences between ODBC and JDBC.	Following are the notable differences between ODBC and JDBC. <table><tr><td></td><td>ODBC</td><td>JDBC</td></tr><tr><td>Definition</td><td>ODBC - Open DataBase Connectivity.</td><td>JDBC - Java Database Connectivity.</td></tr><tr><td>Languages</td><td>Can be used for C/C++/java.</td><td>Only for Java.</td></tr><tr><td>Platform</td><td>Windows</td><td>Most of the platforms being cross-platform</td></tr></table>	Understand	CLO14	CACS003.14

S No	QUESTION	ANSWER			Blooms Level	CLO	CLO Code
				compatibilit y.			
		Driver Development	ODBC drivers are implemented in native languages like C/C++.	implemented in Java.			
		Performance	ODBC drivers are faster.	JDBC drivers are slower than ODBC drivers.			
		Type	ODBC is procedural.	JDBC is object oriented.			
15	What is a Stream?	A Stream is an abstraction that either produces or consumes information.			Remember	12	CACS003.12
16	What is File Class?	It is a non-stream class used to know the properties of a file like when it was created (or modified), has read and write permissions, size etc.			Remember	12	CACS003.12
17	What is IO stream?	It is a stream of data that flows from source to destination.			Remember	12	CACS003.12
18	What is Random access file?	It is a special class from java.io package which is neither a input stream nor a output stream.			Remember	12	CACS003.12
19	Define the use of the statement System.out.println()?	"println()" is a method of PrintStream class. "out" is a static object of PrintStream class defined in "System" class.			Understand	12	CACS003.12
20	What is Scanner class?	Scanner class is used for reading Data Stream from the input device.			Remember	12	CACS003.12
21	What an I/O filter?	An I/O filter is an object that reads from one stream and writes to another.			Remember	12	CACS003.12
22	What is the use of character streams?	Character Stream Classes are used to read characters from the source and write characters to destination.			Remember	12	CACS003.12
23	Define the term 'JDBC'.	JDBC is a Java API that is used to connect and execute the query to the database. JDBC API uses JDBC drivers to connect to the database.			Understand	13	CACS003.13
24	What is JDBC Driver?	DBC Driver is a software component that enables Java application to interact with the database.			Understand	13	CACS003.13

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
25	List out the types of JDBC drivers?	Four types of JDBC drivers. 1. JDBC-ODBC bridge driver 2. Native-API driver (partially java driver) 3. Network Protocol driver (fully java driver) Thin driver (fully java driver)	Remember	14	CACS003.14
26	What are JDBC statements?	In JDBC, Statements are used to send SQL commands to the database and receive data from the database	Understand	13	CACS003.13
27	What is the use of PreparedStatement?	The PreparedStatement interface is a sub interface of Statement. It is used to execute the parameterized query.	Understand	13	CACS003.13
28	Define the use of executeQuery() method?	1. The executeQuery method can be used only with the select statement. 2. The executeQuery() method returns a ResultSet object which contains the data retrieved by the select statement.	Remember	13	CACS003.13
29	What is the role of JDBC DriverManager class?	The DriverManager class acts as an interface between user and drivers.	Remember	14	CACS003.14
		UNIT - V			
1	Explain Java AWT classes?	The hierarchies of Java AWT classes are given below. 	Understand	CLO15	CACS003.15
2	Explain introduction to swing?	Java Swing is a part of Java Foundation Classes (JFC) that is used to create window-based applications. It is built on the top of AWT (Abstract Windowing Toolkit) API and entirely written in java. Unlike AWT, Java Swing provides platform-independent and lightweight components. The javax.swing package provides classes for java swing API such as JButton, JTextField, JTextArea, JRadioButton, JCheckbox, JMenu, JColorChooser etc.	Understand	CLO15	CACS003.15

S No	QUESTION	ANSWER			Blooms Level	CLO	CLO Code
3	Explain swings Vs AWT?	**s.no**	**Java AWT**	**Java Swing**	Understand	CLO15	CACS003.15
		1	AWT components are platform-dependent.	Java swing components are platform independent.			
		2	AWT components are heavyweight.	Swing components are lightweight.			
		3	AWT doesn't support pluggable look and feel.	Swing supports pluggable look and feel.			
		4	AWT provides less components Than Swing.	Swing provides more powerful components such as tables, lists, scroll panes, color chooser ,tabbed pane etc.			
4	Define the hierarchy for swing components?				Remember	CLO15	CACS003.15
5	Define JFrame?	The javax.swing.JFrame class is a type of container which inherits the java.awt.Frame class. JFrame works like the main window where components like labels, buttons, textfields are added to create a GUI. Unlike Frame, JFrame has the option to hide or close the window with the help of setDefaultCloseOperation(int) method.			Remember	CLO16	CACS003.16

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
6	Define JApplet?	An applet is a Java program that runs in a Web browser. An applet can be a fully functional Java application because it has the entire Java API at its disposal. There are some important differences between an applet and a standalone Java application, including the following − 1.An applet is a Java class that extends the java.applet.Applet class. 2.A main() method is not invoked on an applet, and an applet class will not define main(). 3.Applets are designed to be embedded within an HTML page. 4.When a user views an HTML page that contains an applet, the code for the applet is downloaded to the user's machine	Remember	CLO17	CACS003.17
7	Define JDialog?	The JDialog control represents a top level window with a border and a title used to take some form of input from the user. It inherits the Dialog class. Unlike JFrame, it doesn't have maximize and minimize buttons. **JDialog class declaration** public class JDialog extends Dialog implements WindowConstants, Accessible, RootPaneContainer.	Remember	CLO16	CACS003.16
8	Explain JPannel?	The JPanel is a simplest container class. It provides space in which an application can attach any other component. It inherits the JComponents class. It doesn't have title bar. **JPanel class declaration** **public class** JPanel **extends** JComponent **implements** Accessible	Remember	CLO16	CACS003.16
9	Explain JButton?	The JButton class is used to create a labeled button that has platform independent implementation. The application result in some action when the button is pushed. It inherits AbstractButton class. **JButton class declaration** Let's see the declaration for javax.swing.JButton class. **public class** JButton **extends** AbstractButton **implements** Accessible	Understand	CLO16	CACS003.16
10	Define JLabel?	The object of JLabel class is a component for placing text in a container. It is used to display a single line of read only text. The text can be changed by an application but a user cannot edit it directly. It inherits JComponent class. **JLabel class declaration** Let's see the declaration for javax.swing.JLabel class. **public class** JLabel **extends** JComponent **implements** SwingConstants, Accessible	Remember	CLO16	CACS003.16
11	Define JTextField?	The object of a JTextField class is a text component that allows the editing of a single line text. It inherits JTextComponent class. **JTextField class declaration** Let's see the declaration for javax.swing.JTextField class. **public class** JTextField **extends** JTextComponent **implements** SwingConstants	Remember	CLO16	CACS003.16

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
12	Define Layout manager types?	The LayoutManagers are used to arrange components in a particular manner. LayoutManager is an interface that is implemented by all the classes of layout managers. **Layout manager types:** java.awt.BorderLayout java.awt.FlowLayout java.awt.GridLayout java.awt.CardLayout java.awt.GridBagLayout	Remember	CLO16	CACS003.16
13	Define BorderLayout, CardLayout and FlowLayout ?	The **border layout** arranges the components to fit in the five regions: east, west, north, south and center. The **Card Layout** object treats each component in the container as a card. Only one card is visible at a time. The **Flow Layout** is the default layout. It layouts the components in a directional flow.	Remember	CLO16	CACS003.16
14	What Inheritance hierarchy for applets?	The java.applet package contains a class Applet which uses various interfaces such as AppletContext, AppletStub and AudioCIip. The applet class is an extension of Panel class belonging to java.awt package. To create an user friendly graphical interface we need to place various components on GUI window. There is a Component class from java.awt package which derives several classes for components. These classed include Check box, Choice, List, buttons and so on. The Component class in java.awt is an abstract class. The class hierarchy for Applets Applet class hierarchy	Understand	CLO17	CACS003.17
15	Explain life cycle of an applet	Four methods in the Applet class gives you the framework on which you build any serious applet − init − This method is intended for whatever initialization is needed for your applet. It is called after the param tags inside the applet tag have been processed. start − This method is automatically called after the browser calls the init method. It is also called whenever the user returns to the page containing the applet after having gone off to other pages.	Understand	CLO17	CACS003.17

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
		stop − This method is automatically called when the user moves off the page on which the applet sits. It can, therefore, be called repeatedly in the same applet. destroy − This method is only called when the browser shuts down normally. Because applets are meant to live on an HTML page, you should not normally leave resources behind after a user leaves the page that contains the applet.			
16	What is AWT?	AWT stands for Abstract Window Toolkit. It enables the programmers to develop Java applications with GUI components, such as windows, and buttons	Understand	15	CACS003.15
17	Why Swing is called light weight?	Most of Swing component are inherited form JComponent and doesn't required a native peer and that's why they are referred as light weight component.	Remember	15	CACS003.15
18	What is Swing?	Swing is a lightweight Java graphical user interface (GUI) widget toolkit that includes a rich set of widgets	Understand	15	CACS003.15
19	What is an Event In Swing?	Changing the state of an object is called an event.	Understand	16	CACS003.16
20	What is an Event Handler In Swing?	An event handler is a part of a computer program created to tell the program how to act in response to a specific event.	Remember	16	CACS003.16
21	What is the use of Layout Manager?	A layout manager is an object that is used to organize components in a container.	Remember	16	CACS003.16
22	What is a container in a GUI?	A container contains and arranges other components (including other container) through the use of layout managers, which use specific layout spolicies to determine where components should go as a function of the size of the container.	Understand	19	CACS003.19
23	What is the preferred size of a component?	The preferred size of a component is the minimum component size that will allow the component to display normally.	Remember	16	CACS003.16
24	What is clipping?	Clipping is the process of confining paint operations to a limited area or shape.	Understand	19	CACS003.19
25	What is JFC?	JFC stands for Java Foundation Classes. These are the Java class libraries provided as part of Java 2 Platform, Standard Edition (J2SE) to support building graphics user interface (GUI) and graphics functionality for client applications that will run on popular platforms such as Microsoft Windows, Linux, and Mac OSX.	Understand	19	CACS003.19
26	What is Component?	A component is an object having a graphical representation that can be displayed on the screen and that can interact with the user.	Understand	19	CACS003.19
27	Write about Applet and its uses?	A java applet is program that can be included in a HTML page and be executed in a java enabled client browser. Applets are used for creating dynamic and interactive web applications.	Remember	18	CACS003.18
28	What happens when an applet is loaded?	An instance of the applet's controlling class is created. Then, the applet initializes itself and finally, it starts running.	Remember	18	CACS003.18

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
29	What are untrusted applets?	Untrusted applets are those Java applets that cannot access or execute local system files. By default, all downloaded applets are considered as untrusted.	Remember	18	CACS003.18
30	When is update method called?	Whenever a screen needs redrawing (e.g., upon creation, resizing, validating) the update method is called.	Remember	19	CACS003.19

Signature of the Faculty   **Signature of the HOD**