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Year / Semester: I Year/ II Semester

Degree / Branch: B.Tech. - CSE / AI&ML / DS / CS / IT / IoT

Subject Code & Title: MR23-1CS0105 **/Java Programming**

Question Bank

Q.No	Question	Course Outcome	Question Level	Marks	Section	Unit
1	a). Define OOP and explain the concepts of OOPs. b). Explain java features.	**CO1**	Easy	8	Section-I	1
2	What is an operator? Explain various types of operators available in Java with an example code for each.	**CO1**	Easy	8	Section-I	1
3	Explain the following with suitable examples, i). Simple if statement, ii). if- else statement, iii). if-else-if statement, iv).Switch statement	**CO1**	Medium	8	Section-I	1
4	a). Illustrate the Iteration Statements in java with suitable examples. b). Write a program to illustrate the sum of **"n"** natural numbers using for loop statement.	**CO1**	Medium	8	Section-I	1
5	a). Write short notes on break, continue statements with examples. b). Write a java program to Illustratehow the break statement alters control flow within the loop?	**CO1**	Medium	8	Section-I	1
6	a) Explain array concept using Java. b) Write a java program to **sort** an array of strings.	**CO1**	Complex	8	Section-I	1
7	What is a Constructor? Explain various types of Constructors in detail with a suitable example.	**CO1**	Medium	8	Section-I	1
8	What is Method Overloading? Write a java program to illustrate **"Method Overloading"**.	**CO1**	Complex	8	Section-I	1
9	a) Explain in detail about recursion in java? b) Write a program to implement the **factorial** of a number using recursion in java.	**CO1**	Medium	8	Section-I	1
10	What is garbage collection? Explain how to call the garbage collector explicitly in java.	**CO1**	Easy	8	Section-I	1
11	a). What is inheritance in object-oriented programming? Discuss its significance. b). Define i. Class, ii. Superclass, iii. Subclass, iv. Reusability and write the benefits of inheritance?	**CO2**	Easy	8	Section-II	2
12	Define inheritance and explain the different types of inheritance (single, multilevel, hierarchical) with example programs?	**CO2**	Medium	8	Section-II	2
13	Write a java code to create a chain of new classes that inherits from their previous classes (Multilevel inheritance), adding specific functionalities.	**CO2**	Complex	8	Section-II	2
14	Explain the usage of the super keyword in inheritance, elucidating its role in facilitating access to superclass members and constructors from subclass contexts.	**CO2**	Medium	8	Section-II	2

15	Discuss the concept of preventing inheritance in Java programming, focusing on its significance, mechanisms, and potential use cases.	**CO2**	Medium	8	Section-II	2
16	With a suitable example programs, discuss the importance of final variable, final method and final class to prevent inheritance in Java?					
17	Explain the concept of compile time polymorphism (method overloading). Elaborate its types with illustrative examples and discuss its advantages.	**CO2**	Complex	8	Section-II	2
18	a). Define the concept of run time polymorphism (method overriding). b). Write a java program to get interests from different banks using the Hierarchical inheritance and run time polymorphism.	**CO2**	Medium	8	Section-II	2
19	Discuss the role of abstract classes and methods in achieving polymorphism, with an example code.	**CO2**	Medium	8	Section-II	2
20	Write a java program for Abstract class having Constructor, Data Member and Methods?	**CO2**	Medium	8	Section-II	2
21	a). List the difference between an abstract class and an interface. b). Write a Java program to find the square and cube of a given number using hierarchical inheritance.	**CO3**	Easy, Medium	8	Section-III	3
22	Define interface? Explain the implementation of an interface in Java with an example.	**CO3**	Medium	8	Section-III	3
23	Explain the relationship between classes and interfaces with an example of implementing interfaces with different classes.	**CO3**	Medium	8	Section-III	3
24	Briefly explain Java Accessing Implementations through Interface References with an example of extending interface-interface inheritance.	**CO3**	Medium	8	Section-III	3
25	Define multiple inheritance in Java by interacting with program code.	**CO3**	Easy	8	Section-III	3
26	Explain the Java Nested Interface with an example of a nested interface that is declared within the class.	**CO3**	Complex	8	Section-III	3
27	Define Java Default Methods? Mention the different types of inner classes and explain anyone with an example.	**CO3**	Easy	8	Section-III	3
28	a. What is a Java package? Explain the types of packages in detail. b. Define user-defined packages. With a suitable example.	**CO3**	Easy, Medium	8	Section-III	3
29	a. Explain how to compile and run a Java package. b. List various ways to access a package from another package and explain at least one way with an example code.	**CO3**	Medium	8	Section-III	3
30	Explain a subpackage in Java with a suitable example code.	**CO3**	Medium	8	Section-III	3
31	a) What is exception handling? Explain an example of exception handling in the case of division by zero. b) Write a Java program that illustrates the application of multiple catch statements.	**CO4**	Medium	8	Section-IV	4
32	a)What are the advantages of using the exception handling mechanism? b)Explain Java exceptions keywords with an example code.	**CO4**	Easy	8	Section-IV	4
33	a) Explain in detail Java's built-in exceptions. b) Write a program with nested try statements for handling exceptions.	**CO4**	Medium	8	Section-IV	4
34	a) Explain how to create your own exception in a Java program. b) Write a Java program that illustrates the try-catch-finally clause.	**CO4**	Medium	8	Section-IV	4

35	a). Explain the following: Checked exceptions and Unchecked exceptions. b). Explain the difference between throw and throws keywords in Java.	**CO4**	Medium	8	Section-IV	4
36)	a) . Definethe following:, i) Single-tasking; ii) Multitasking; iii) Multiprocessing; iv). Multithreading. b) . Explaincreating a thread by extending the thread class with an example code.	**CO4**	Easy	8	Section-IV	4
37)	a) What is the differentiate between a thread and a process. b) b) What is the differentiate between multiprocessing and multithreading.	**CO4**	Easy	8	Section-IV	4
38)	Explain the complete life cycle of a thread with an example code.	**CO4**	Medium	8	Section-IV	4
39)	List out the ways to create a thread and explain how to create a thread using the Runnable interface with example code.	**CO4**	Medium	8	Section-IV	4
40)	a) How do we set priorities for threads? b)What are interrupting threads?	**CO4**	Easy	8	Section-IV	4
41)	What are the key differences between Swing and AWT?	**CO5**	Easy	8	Section-V	5
42)	Write a Swing program that displays a simple window with a button and a text field.	**CO5**	Easy	8	Section-V	5
43)	Explain the various components in Swing.	**CO5**	Medium	8	Section-V	5
44)	What is the life cycle of an applet? Explain in detail.	**CO5**	Medium	8	Section-V	5
45)	Discuss the major differences between application and applet?	**CO5**	Easy	8	Section-V	5
46)	Explain the following methods: i) . drawRect(), ii) drawOval(), iii) drawLine(), iv) draArc().	**CO5**	Medium	8	Section-V	5
47)	Explain MVC architecture with respect to swings component.	**CO5**	Medium	8	Section-V	5
48)	What is AWT? Explain about the various AWT controls available in java.	**CO5**	Medium	8	Section-V	5
49)	Explain how to use the AWT package for adding graphical components to an applet.	**CO5**	Complex	8	Section-V	5
50)	What is applet in java? How do we create an applet? Give an example.	**CO5**	Medium	8	Section-V	5