COURSE   : MAJOR CORE
PAPER   : OBJECT ORIENTED PROGRAMMING
SUBJECT CODE: 23CS/MC/OP34
TIME   : 1 ½ HOURS   MAX. MARKS: 50

	SECTION – A **(10 x 1 = 10)**		
Answer all (Each question carries ONE mark)			

Q.No	Choose the correct answer	CO	CL
1.	_____of the following statements is true about strongly typed language. a) Every variable has a type, every expression has a type, and every type is strictly defined b) All assignments, whether explicit or via parameter passing in method calls, are checked for type compatibility c) The compiler checks all expressions and parameters to ensure that the types are compatible d) All the above statements are true	CO1	K1
2.	_____keyword is used to create a subclass in java. a) extends b) implements c) inherits d) super	CO1	K1
3.	_____ happens if a subclass does not override a method from its super-class. a) The subclass will not compile b) The subclass will use the method from the superclass c) The superclass method will be hidden d) The method will become private in the subclass	CO1	K1
4	Program statements that you want to monitor for exceptions are contained within a _____ block. a) try b)catch c) throw d) throwable	CO1	K1
5.	_____of the following statements is true about overriding the toString() method in Java. a) Overriding the toString() method is mandatory for all classes that extend the Object class. b) If a class overrides the toString() method, it should always call super.toString() to get the default implementation from the Object class c) Overriding the toString() method allows you to provide a meaningful string representation of an object d) The toString() method cannot be overridden	CO1	K1

	Fill in the blanks		
6.	The general form of the package statement is _____.	CO1	K1
7.	When the for loop first starts, the _____ portion of the loop is executed.	CO2	K2
8.	_____program contains two or more parts that can run concurrently.	CO2	K2
9.	_____ ensures that a shared resource requested by multiple threads is used by only one thread at a time.	CO2	K2
10.	_____ method should be called to obtain the int value from an Integer object.	CO2	K2

SECTION- B   **(5 x 2 = 10)**

Answer all (Each question carries TWO marks)

11.	What is Java Bytecode?	CO1	K1
12.	Show how to find the length of a string in java using pre-defined String method with an example.	CO1	K1
13.	Explain variables in interfaces.	CO2	K2
14.	Explain the general form of the import statement for importing packages.	CO2	K2
15.	Explain the statement "Generics work only with reference types".	CO2	K2

SECTION- C   **(6 x 5 = 30)**

Answer all (Internal Choice - Each question carries five marks)

16.	a) What are primitive type wrappers in java? List the type wrappers available in Java. **(OR)** b) What is an ArrayList? What are the advantages of using an ArrayList? What are the constructors an ArrayList class has?	CO1	K1
17.	a) Demonstrate the use of switch statement in java with an example and explain. **(OR)** b) What are the two different forms of *super*? Explain.	CO2	K2

18.	a) How can access control mechanism be implemented by making use of packages in Java? Explain. **(OR)** b) Write a Java program that handles exceptions with multiple catch clauses and explain.	CO3	K3
19.	a) Write a java program that implements multithreading concept using Runnable interface. **(OR)** b) Create a single class that automatically works with different types of data and explain the concept involved in it.	CO3	K3

20.	a) Compare Inheritance and Interface with appropriate examples.
	
	(OR)
	
	b) Analyze the following code and explain static variables, methods and blocks.
	class UseStatic
	{
	    static int a = 3;
	    static int b;
	     static void meth(int x)
	    {
	      System.out.println("x = " + x);
	       System.out.println("a = " + a);
	       System.out.println("b = " + b);
	     }
	    static
	     { System.out.println("Static block initialized."); b = a * 4; }
	    public static void main(String args[])
	     { meth(42); } }
		CO4	K4

		CO4	K4
| 21 | a) Analyze the scope and lifetime of variables in the following java program.<br><br>```java
class Example
{
    public static void main(String args[])
    {
        int x;
        x = 10;
        if(x = = 10) {
            int y = 20;
            System.out.println("x and y: " + x + " " + y);
            x = y * 2; }
        y = 100;
        System.out.println("x is " + x);
    }
}
```<br><br><div align="center">**(OR)**</div><br>b) Analyze the following Java code snippet and explain the behavior of the operators and determine the values of variables a, b, c and the output of the program. Provide a detailed explanation of each operator involved.<br><br>```java
class Example
{
    public static void main(String args[])
    {
        String binary[] = { "0000", "0001", "0010", "0011", "0100",
            "0101", "0110", "0111", "1000", "1001", "1010", "1011",
            "1100", "1101", "1110", "1111" };
        int a = 1, b = 2,c,d;
        c=a++;
        c = ++b;
        d = 6;
        c++;
        d = b|d;
        System.out.println(" a|b = " + binary[d]);
    }
}
``` |  |  |

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