	Semester: August 2021 – December 2021		
	Examination: ESE Examination		
Programme code: __ **Programme: B.TECH**		**Class:** SY	**Semester:** III (SVU 2020)
Name of the Constituent College: **K. J. Somaiya College of Engineering**		**Name of the Department** COMP	
Course Code: 116U01C304	**Name of the Course: Object Oriented Programming and Methodology**		
Duration : 1 Hour 45 Minutes (15 minutes extra for uploading)	**Maximum Marks : 50**		
Instructions: **1)Draw neat diagrams 2) Assume suitable data if necessary**			

Question No.		Max Marks
Q1 (A)	**Objective (all Compulsory)**	10
1.1	What will be the output of the following program?	2M

```
1  class Test
2  1. {
3  2.     int i;
4  3. }
5  4. public class Main
6  5. {
7  6.     public static void main (String args[])
8  7.     {
9  8.         Test test = new Test();
10 9.         System.out.println(test.i);
11 10.     }
12 }
13
```

A. 1

B. 0

C. Compilation error

D. Runtime error

1.2	What will be the output of the following program?	2M
| | ```
1  class Main
2 ▾ {
3      void sum(int a,long b){System.out.println("a method invoked");}
4      void sum(long a,int b){System.out.println("b method invoked");}
5
6 ▾    public static void main(String args[]){
7    Main obj=new Main();
8      obj.sum(20,20);
9      }
10 }
11
12
``` | |
| | A. Runtime error
B. a method invoked
C. b method invoked
D. Compile time error | |
| 1.3 | What will be the output of the following program? | 2M |
| | ```
1  class Main
2 ▾ {
3 ▾    static{
4          System.out.println("static block is invoked");
5          }
6      public static void main(String args[])
7 ▾ {
8       System.out.println("Hello main");
9      }
10 }
11
12
``` | |
| | A. Hello main
B. static block is invoked
C. static block is invoked
    Hello main
D. Hello main
    static block is invoked | |
| 1.4 | What will be the output of the following program? | 2M |

| | ```
1   class Animal
2 ▾ {
3   Animal()
4 ▾   {
5       System.out.println("animal is created");}
6   }
7   class Dog extends Animal
8 ▾ {
9   Dog()
10 ▾ {
11  System.out.println("dog is created");
12  }
13  }
14  class TestSuper4
15 ▾ {
16  public static void main(String args[])
17 ▾ {
18  Dog d=new Dog();
19  }
20      }
21
``` | |
	A. animal is created
	B. dog is created
	C. dog is created
	   animal is created
	D. animal is created
	   dog is created	

1.5	Which of the following is an incorrect statement about packages? A) Package defines a namespace in which classes are stored B) A package can contain other package within it C) Java uses file system directories to store packages D) A package can be renamed without renaming the directory in which the classes are stored	1M

1.6	Thread priority in JAVA is
	    A. integer
	    B. float
	    C. double
	    D. long
		1M

Q1 (B)	**Attempt any FIVE questions out of the following (any 5 out of 7)**	10

1.1	What are the differences between Java method and Java constructor?(2 points)	2M
1.2	List features of JAVA.	2M
1.3	What is a need of a constructor? List constructor types.	2M
1.4	What are the differences between an abstract class and an interface?	2M
1.5	What are suspend() and resume() methods of a Thread class?	2M
1.6	How JAVA is different from C++ language?	2M
1.7	Explain polymorphism in brief.	2M
Q. 2	Draw the class diagram based on the following scenario. Also write the implementation code. In a university there are different classrooms, offices and departments. A department has a name and it contains many offices. A person working at the university has a unique ID and can be a professor or an employee. A professor can be a full, associate or assistant professor and he/she is enrolled in one department. Offices and classrooms have a number ID, and a classroom has a number of seats. Every employee works in an office.	10
Q. 3	Write a program which accepts information about n no of students from user .Create an array of objects to store stud_id ,name,avg_marks. Your program should provide following functionalities 1. To add student according to descending order of their average marks. 2. To delete any student data based on the student id. 3. To display student details according to the descending order of their average marks.	10
Q. 4	Write a program which accepts marks of a student (between 0 to 100) and checks whether it is within the range or not. If it is within the range then it displays "marks entered successfully", if not then it throws the exception of user defined class "MarksOutOfRangeException". The class should contain appropriate toString method to describe object the class with the out of range marks entered by the user. **OR** Develop a java program using multithreading in which thread A reads a character from a character array and thread B reads integer from an integer array. Display a character and a digit on Console alternatively such that one character from a character array is printed and then an integer from an integer array is printed and so on.(Take 5 characters and 5 integers).	10