F REMOVAL QUESTION

1

a) **sequence**, **selection** and **repetition .**

b) if-else

c) **counter controlled or definite**

d) **sentinel**

e) **sequence**

f) **zero**

g) **strongly typed**

h)prefix

i)default constructer

j)compiler

[B] List the features of Java Programming language is-

1. [Simple](https://www.javatpoint.com/features-of-java#Simple)
2. [Object-Oriented](https://www.javatpoint.com/features-of-java#Object-Oriented)
3. [Portable](https://www.javatpoint.com/features-of-java#Portable)
4. [Platform independent](https://www.javatpoint.com/features-of-java#Platform-independent)
5. [Secured](https://www.javatpoint.com/features-of-java#Secured)
6. [Robust](https://www.javatpoint.com/features-of-java#Robust)
7. [Architecture neutral](https://www.javatpoint.com/features-of-java#Architecture-neutral)
8. [Interpreted](https://www.javatpoint.com/features-of-java#Interpreted)
9. [High Performance](https://www.javatpoint.com/features-of-java#High-Performance)
10. [Multithreaded](https://www.javatpoint.com/features-of-java#Multithreaded)
11. [Distributed](https://www.javatpoint.com/features-of-java#Distributed)
12. [Dynamic](https://www.javatpoint.com/features-of-java#Dynamic)

[C] Explain the purpose of static methods and variables with example.

Java static method

If you apply static keyword with any method, it is known as static method.

* A static method belongs to the class rather than the object of a class. একটি স্ট্যাটিক পদ্ধতি একটি শ্রেণীর বস্তুর পরিবর্তে শ্রেণীর অন্তর্গত।
* A computer screen shot of a program code

  Description automatically generated
* A static method can be invoked without the need for creating an instance of a class.
* A static method can access static data member and can change the value of it.

A screenshot of a computer program

Description automatically generated

## Java static variable

If you declare any variable as static, it is known as a static variable.

* The static variable can be used to refer to the common property of all objects

**Memory Efficiency:**

* Static variables are created only once, and their values are shared among all instances.

A screenshot of a computer program

Description automatically generated



Yes, exactly. In the statement **Car car2 = new Car();**, **car2** is an instance object of the **Car** class

A screenshot of a computer program

Description automatically generated

A screenshot of a computer program

Description automatically generated

### **Extra question Q) Why is the Java main method static?**

Ans) It is because the object is not required to call a static method. If it were a non-static method, [JVM](https://www.javatpoint.com/jvm-java-virtual-machine) creates an object first then call main() method that will lead the problem of extra memory allocation.



[D] Write various access specifiers in Java with example

A close-up of a white background

Description automatically generated

2.

A. Explain the between difference a local, instance and static variable in Java with example

A screenshot of a computer

Description automatically generated

A screenshot of a computer program

Description automatically generated

b. Identify and correct the errors in each of the following sets of code:

a) while (c<5)

product \*= c:

c++;

Ans: Error not given [ } ] after c++.

it should be give right parenthesis after while loop.

b) if (gender==1)

System.out.println("Woman")

else;

System.out.println("Man"; ennen the value 5.

static int variabes = 10;

Ans: Error using semicolon [ ; ] after else. tit should not use after decision making else.

c) What is wrong with the following while statement?

while (z >= 0)

sum+z;

Ans: Error not given parenthesis and increment operator.

It should be used left and right parenthesis and prefix or postfix operator.

d) Determine the value of the variables in the statement product \*-

salt("variables)

x after the calculation is performed. Assume that all variables are type int and initially have the value 5

Ans: 25.

[C] Can we overload the constructors? Explain with example.

Ans:

[D] Write a Java program that takes a number from the user and generates an integer between 1 and 7. It displays the weekday name.

Test Data Input number:3

Input number:3 Wednesday

জাভাতে Enums হল একটি বিশেষ ধরনের ডেটা টাইপ যা আপনাকে ধ্রুবকের একটি সেট সংজ্ঞায়িত করতে দেয়। নামযুক্ত ধ্রুবক মানগুলির একটি সংগ্রহ তৈরি করতে Enums ব্যবহার করা হয়, যা কোডটিকে আরও পঠনযোগ্য এবং রক্ষণাবেক্ষণযোগ্য করে তোলে।

import java.util.Scanner;

public class WeekdayEnumExample {

// Enum to represent days of the week

enum Day {

SUNDAY, MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY

}

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

// Prompt the user to enter a number

System.out.print("Input number (1-7): ");

int userInput = scanner.nextInt();

// Validate the input range

if (userInput >= 1 && userInput <= 7) {

// Map the user input to the corresponding day using the Day enum

Day day = Day.values()[userInput - 1];

// Display the weekday name

System.out.println("Weekday for input number " + userInput + ": " + day);

} else {

System.out.println("Invalid input. Please enter a number between 1 and 7.");

}

scanner.close();

}

}

3.

A. What is the static variable? Explain a java program with and without static variable.

Static variable with program:

Suppose there are 500 students in my college, now all instance data members will get memory each time when the object is created. All students have its unique rollno and name, so instance data member is good in such case. Here, "college" refers to the common property of all [objects](https://www.javatpoint.com/object-and-class-in-java). If we make it static, this field will get the memory only once.

A screenshot of a computer program

Description automatically generated

Static variable without program:

A screen shot of a computer program

Description automatically generated

c.

## **Object**

Any entity that has state and behavior is known as an object

## **Class**

Collection of objects is called class

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a computer screen

Description automatically generated

4.

[A]

**A screenshot of a computer error

Description automatically generated**

[c]

It is possible to make any class read only or wright only in java by Encapsulation

* 1. setter method:is used to set value of a private class.

A screenshot of a computer

Description automatically generated

ii)getter Method: is used to retrieve the value of a private class.

A screenshot of a computer program

Description automatically generated

[D]

A screenshot of a computer

Description automatically generated

[E]

A screenshot of a computer

Description automatically generated

5

[A]

Inside the class A1

Inside the class A2

Inside the class A3

[B]

**A screenshot of a computer error

Description automatically generated**

[C]

A screenshot of a computer

Description automatically generated

6

a.

i vijaya

ii Arithmatimaticexception

rest of the code

iii compile time Error

iv running safely

[B]

A close-up of a package

Description automatically generated

[c]

**How to perform two tasks by two threads?**

You can achieve this by creating two separate threads, and each thread will execute a different task.

**How to perform multithreading by anonymous class?**

You can use an anonymous class to implement the **Runnable** interface in Java.

**What is the Thread Scheduler, and what is the difference between preemptive scheduling and time slicing?**

The thread scheduler is part of the operating system or the Java Virtual Machine (JVM) that manages the execution of threads.

Preemptive scheduling allows the scheduler to interrupt a currently running thread to start or resume another thread. Time slicing is a specific form of preemptive scheduling where each thread is allocated a fixed time slot for execution.

**What happens if we start a thread twice?**

If you attempt to start a thread that has already been started, it will throw an **IllegalThreadStateException**. Once a thread has completed its execution or terminated, you cannot restart it

**What happens if we call the run() method instead of start() method?**

If you call the **run()** method directly, it will execute the code synchronously in the current thread, not in a new thread. To achieve multithreading, you should call the **start()** method, which internally invokes the **run()** method in a new thread.

**What is the purpose of the join method?**

The **join()** method is used to wait for a thread to complete its execution before moving on.

**What is the purpose of the finalize() method?**

The **finalize()** method is called by the garbage collector before reclaiming the memory occupied by an object.

**What is deadlock, and when can it occur?**

Deadlock is a situation in multithreading where two or more threads are unable to proceed because each is waiting for the other to release a lock