Assignment 1

Question1. What is JDK? JRE? JVM?

1.JDK (Java Development Kit) is a Kit that provides the environment to develop and execute(run) the Java program. JDK is a kit(or package) that includes two things development tools and JRE.

2.JRE (Java Runtime Environment) is an installation package that provides an environment to only run(not develop) the java program(or application)onto your machine. JRE is only used by those who only want to run Java programs that are end-users of your system.

3.JVM (Java Virtual Machine) is a very important part of both JDK and JRE because it is contained or inbuilt in both. Whatever Java program you run using JRE or JDK goes into JVM and JVM is responsible for executing the java program line by line, hence it is also known as an interpreter.

Question2. What is java compiler?

A Java compiler is a program that takes the text file work of a developer and compiles it into a platform-independent Java file.

Question3. Why is java platform independent?

Java is platform independent. Because the Java compiler converts the source code to bytecode, which is Intermidiate Language. Bytecode can be executed on any platform (OS) using JVM(Java Virtual Machine).

Question4. What is IDE? Why is it important for developers?

An IDE, or Integrated Development Environment, enables programmers to consolidate the different aspects of writing a computer program. IDEs increase programmer productivity by combining common activities of writing software into a single application: editing source code, building executables, and debugging.

Question5. Is java case sensitive?

Java is a case-sensitive language, which means that the upper or lower case of letters in your Java programs matter.

Question6. What do the following key words do?

static, final, public, private, void, null, package, Class, new

static

Used to declare a field, method, or inner class as a class field. Classes maintain one copy of class fields regardless of how many instances exist of that class. static also is used to define a method as a class method.

final

Define an entity once that cannot be changed nor derived from later. More specifically: a final class cannot be subclassed, a final method cannot be overridden, and a final variable can occur at most once as a left-hand expression on an executed command. All methods in a final class are implicitly final.

public

The public keyword is used in the declaration of a class, method, or field; public classes, methods, and fields can be accessed by the members of any class.

private

The private keyword is used in the declaration of a method, field, or inner class; private members can only be accessed by other members of their own class.

void

The void keyword is used to declare that a method does not return any value.

null

null is a reserved word (keyword) for literal values.

package

Java package is a group of similar classes and interfaces. Packages are declared with the package keyword.

class

A type that defines the implementation of a particular kind of object.

new

Used to create an instance of a class or array object.

Question7. What is primitive type and reference type?
primitives are data types, while references are pointers, which do not hold their values but point to their values and are used on/with objects.

Question8. Is parameter passed by value or reference?
Java always passes parameter variables by value.

Question9. What is the output: System.out.println(1 > 0 : “A”:”B”);
I am not sure the question is right. Does it mean

```
System.out.println(1 > 0 ? 'A' : 'B');
```

In this case the output will be A.

Question10. How to define constants in java?
To make any variable a constant, we must use 'static' and 'final' modifiers.

Question11. What is String? Is it primitive type?
String is an object, it isn't a primitive type at all, just an array of chars.

Question12. How to check if a String is representing a number?
Using String.isInteger() function to check if the string represent an integer.

Question13:

```
public static void diagramProgramme(){
	Scanner sc = new Scanner(System.in);
	String number = sc.next();
	if(number.equals("q")){
		System.out.println("Exit");
		return;
	}
	int n = Integer.parseInt(number);
	if(n <= 0){
		System.out.println("Error input");
		diagramProgramme();
	}else {
		System.out.println(doSomething(n));
	}
}

public static int doSomething(int n){
	int res = 0;
	for(int i = 1; i <= n; i++){
		res += i;
	}
	return res;
}
```

Question14. Write a program to merge two array of int.

```
public static int[] mergeTwoArray(int[] arr1, int[]arr2){
	if(arr1.length == 0) return arr2;
	if(arr2.length == 0) return arr1;
	int[] res = new int[arr1.length + arr2.length];
	int i = 0;
	for(; i < arr1.length; i++){
		res[i] = arr1[i];
	}

	for(int j = 0; j < arr2.length; j++){
		res[i++] = arr2[j];
	}
	return res;
}
```

Question15. Write a program to find the second largest number inside an array of int.

```
public static int findSecondLargest(int[] arr){
        Arrays.sort(arr);
        return arr[arr.length - 2];
}
```