Assignment no 6 Arusa Korse.

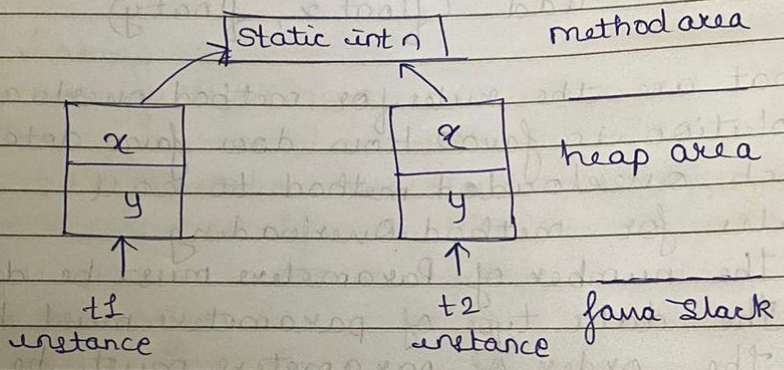
Q.1) Method Overloading, exp with example.
Method Overloading is the process of having methods with same name with different type of parameter or with different number of Parameters
e.g void add (int x, int y)
void add (int x, int y, int z)
void add (float x, float y)

Q.2) what are the rules for method overloading resolution in java? How does java determine which overloaded method to call
→ Rules for method Overloading
1) The number of Parameters must be different
2) The data type of parameters must be different
3) The order of parameters must be different
Java determines which overloaded method to call by finding the exact match or, if no exact match is found, then it will look for methods where the data type can be promoted.

3) What does static keyword mean in java? Exp different bet^n static & non static methods.
→ Static is used to declare members of a class that belong to class itself and not to the instance of class.
- Static methods belong to class itself hence called using class name whereas non static are called using instance.

Q.4) Can static methods be overloaded or overridden in Java? How are static variables shared across multiple instances of a class?

→ Yes, static methods can be overloaded in Java but they can't be overridden.
Static variables are stored at class level, hence only one copy is stored and each instance can access the shared variables. Static variables get space in method area



Q.5) What is the role of static keyword in the context of memory management?

→ Static makes sure that static variables & methods are not tied to instances & can be accessed directly using Class name. They are shared among all instances of same class until program terminates. Static is mainly used to avoid memory wastage.

Q.6) What is the significance of final keyword in Java?

→ Final keyword ensures immutability & restricts modification.

Variables - Not changeable
Methods - Prevents overriding
Classes - Prevents subclasses

Q.6) Can a final method be overridden in a subclass? How does the final keyword affect variables, methods, classes in java.

→ No, final method cannot be overridden in java
Variables: Their values cannot be changed
Methods: Prevents them from being overridden
Classes: Prevents them from being subclassed. i.e no other class can extend it.

Q.8) What does this keyword represent in java? How is this used in constructor and methods?

→ This refers to the current instance of the class in which it appears. So when its basically used to differentiate bet^n instance variables & local variables with same name. In constructor, it can be used to call another constructor called constructor chaining.

Q.9) What are narrowing & widening conversion in java?

→ Widening: Conversion of smaller datatypes to larger ones without loss of data.
Narrowing: Conversion of larger to smaller datatypes which can lead to lossy conversion
~~Widening: long b = in b~~

Q.10) Provide examples of narrowing and widening conversions bet primitive data type

→ Widening
int n = 10;
long l = n

Narrowing
double d = 123.456
int n = (int) d;

Q.11) How does java handle potential loss of precision during narrowing conversion?

→ By truncating higher order bits of the value being converted.
e.g double d = 123.456;
int n = (int) d;
So in this case .456 gets truncated.

Q.12) Explain concept of automatic widening conversion in java.

→ It refers to the implicit conversion of smaller data types to larger ones without the loss of data.
e.g Converting int to long.

Q.13) What are the implications of narrowing and widening conversion on type compatibility & data loss.

→ Narrowing may result in data loss leading to loss of precision. In widening there no data loss. However they may lead to compatibility issues if larger data type cannot accomodate the full range / precision of smaller type.