**1) What is the meaning of Collections in Java?**

**Answer: Collection is a framework that is designed to store the objects and manipulate the design to store the objects.**

**Collections are used to perform the following operations:**

**Searching**

**Sorting**

**Manipulation**

**Insertion**

**Deletion**

**A group of objects is known as collections. All the classes and interfaces for collecting are available in Java util package.**

**2) What are all the Classes and Interfaces that are available in the collections?**

**Answer: Interfaces :-**

**- Collection**

**- List**

**- Set**

**- Map**

**- Sorted Set**

**- Sorted Map**

**- Queue**

**- Classes:**

**Lists: Array List, Vector, Linked List,**

**Sets:- Hash set, Linked Hash Set, Tree Set**

**Maps:- Hash Map, Hash Table, TreeMap, Linked Hashed Map**

**Queue:- Priority Queue**

**3) What is meant by Ordered and Sorted in collections?**

**Answer: Ordered: It means the values that are stored in a collection is based on the values that are added to the collection. So we can iterate the values from the collection in a specific order.**

**Sorted: Sorting mechanisms can be applied internally or externally so that the group of objects sorted in a particular collection is based on the properties of the objects.**

**4) Explain the different lists available in the collection.**

**Answer: Values added to the list are based on the index position and it is ordered by index position. Duplicates are allowed.**

**The types of Lists are:**

**a) Array List:**

**- Fast iteration and fast Random Access.**

**- It is an ordered collection (by index) and not sorted.**

**- It implements the Random Access Interface.**

**b) Vector: It is the same as Array List.**

**- Vector methods are synchronized.**

**- Thread safety.**

**- It also implements Random Access.**

**- Thread safety usually causes a performance hit.**

**c) Linked List:**

**- Elements are doubly linked to one another.**

**- Performance is slower than the Array list.**

**- Good choice for insertion and deletion.**

**- In Java 5.0 it supports common queue methods peek( ), Pool ( ), Offer ( ) etc.**

**5) Explain about Set and their types in a collection.**

**Answer: Set cares about uniqueness. It doesn’t allow duplications.**

**Here “equals ( )” method is used to determine whether two objects are identical or not.**

**a) Hash Set:**

**- Unordered and unsorted.**

**- Uses the hash code of the object to insert the values.**

**- Use this when the requirement is “no duplicates and don’t care about the order”.**

**b) Linked Hash set:**

**- An ordered version of the hash set is known as Linked Hash Set.**

**- Maintains a doubly-Linked list of all the elements.**

**- Use this when an iteration order is required.**

**c) Tree Set:**

**- It is one of the two sorted collections.**

**- Uses the “Read-Black” tree structure and guarantees that the elements will be in ascending order.**

**- We can construct a tree set with the constructor by using a comparable (or) comparator.**

**6) Explain about Map and its types.**

**Answer: Map cares about the unique identifier. We can map a unique key to a specific value. It is a key/value pair.**

**We can search a value, based on the key.**

**Like the set, the map also uses the “equals ( )” method to determine whether two keys are the same or different.**

**a) Hash Map:**

**- Unordered and unsorted map.**

**- Hashmap is a good choice when we don’t care about the order.**

**- It allows one null key and multiple null values.**

**b) Hash Table:**

**- Like the vector key, methods of the class are synchronized.**

**- Thread safety and therefore slows the performance.**

**- It doesn’t allow anything that is null.t**

**c) Linked Hash Map:**

**- Maintains insertion order.**

**- Slower than Hash map.**

**- I can expect a faster iteration.**

**d) TreeMap:**

**- Sorted Map.**

**- Like Tree set, we can construct a sort order with the constructor.**

**7) Explain the Priority Queue.**

**Answer:- Priority Queue: Linked list class has been enhanced to implement the queue interface. Queues can be handled with a linked list.**

**The purpose of a queue is “Priority-in, Priority-out”.**

**Hence elements are ordered either naturally or according to the comparator. The elements ordering represents their relative priority.**