**Assignment**

**1 What do you understand of hash-collision in a Hashtable?**

**Answer:** Hash table is a data structure that uses a hash function to map elements(keys) to an index.

It offers O(1) amortized time in searching, inserting and deleting. A collision occurs when two or

more elements are hashed(mapped) to same value. For example:

Let the hash function be hash(x) = x%10. ... Hence a collision occurs.

**2 Which of the following is not true for the IdentityHashMap?**

1. IdentityHashMap implements the Map interface with a hash table.

2. IdentityHashMap is synchronized.

3. In IdentityHashMap, two keys k1 and k2 are considered equal if and only if (k1==k2).

4. IdentityHashMap is a class present in java.util package.

**Answer:** IdentityHashMap is synchronized.

**3 Which of the following class doesn’t implement the Set interface?**

1. LinkedHashSet

2. HashSet

3. TreeSet

4. None of the above

**Answer:** None of the above

**4 Which of the following is a correct difference between the Iterator and ListIterator?**

1. None

2. Iterator traverses the elements only in forward direction whereas the ListIterator traverses back and forth.

3. Iterator traverses the elements in backward direction while the ListIterator moves in forward direction.

4. Iterator traverses back and forth while the ListIterator traverses the elements in forward direction

5.Which of the following is a correct method to convert the array of strings into a list?

**Answer:** Iterator traverses the elements only in forward direction whereas the ListIterator traverses back and forth.

**Q5.Which of the following is a correct method to convert the array of strings into a list?**

1. None

2. Arrays class doList() method

3. Arrays class asList() method

4. Arrays class toList() method

**Answer:** Arrays class asList() method

**6.Which of the following is a correct difference between HashSet and TreeSet?**

1. HashSet maintains no order while TreeSet maintains ascending order.

2. TreeSet maintains no order while HashSet maintains ascending order.

3. None

4. HashSet can contain duplicate elements whereas TreeSet contains only unique elements.

**Answer:** HashSet maintains no order while TreeSet maintains ascending order.

**7 What is the correct difference between hashmap and treemap?**

1. HashMap maintains no order but TreeMap maintains ascending order.

2. HashMap contains only values whereas TreeMap contains key and values both.

3. HashMap can contain duplicate elements whereas TreeMap contains only unique elements.

4. None

**Answer:** HashMap maintains no order but TreeMap maintains ascending order.

**8 Which of the following is not true in case of a WeakHashMap?**

1. An entry in WeakHashMap is automatically removed when it is no longer in use.

2. WeakHashMap is a class present in java.util package.

3. WeakHashMap is a Hash table based implementation of the Map interface with weak keys.

4. WeakHashMap doesn't allow null keys and null values.

**Answer:** WeakHashMap doesn't allow null keys and null values.

**9.Which of the following is a correct difference between HashMap and Hashtable?**

1. long

2. HashMap contains only values whereas Hashtable contains key and values both.

3. HashMap is not synchronized while the Hashtable is synchronized.

4. HashMap can contain duplicate elements whereas the Hashtable contains only unique elements.

**Answer:** HashMap is not synchronized while the Hashtable is synchronized.

**10.Which of the following is a valid difference between Set and Map?**

1. Set contains only values whereas Map contains key and values both.

2. Set doesn't maintain any order whereas Map maintains ascending order.

3. None

4. Set can contain duplicate elements whereas Map contains only unique elements.

**Answer:** Set contains only values whereas Map contains key and values both.

**11 When would you choose to use LinkedList over ArrayList in an application?**

1. LinkedList is preferred when application requires to perform merging or sorting operations.

2. LinkedList is preferred when applications needs to support insertions or deletions of elements.

3. LinkedList is preferred when application requires to perform frequent get or search operations.

4. None

**Answer:** LinkedList is preferred when applications needs to support insertions or deletions of elements.

**12.Is it possible to define a Set as readOnly, if yes then how?**

1. Yes, use Collections.readonlySet(Set s).

2. Yes, use Collections.unmodifiableSet(Set s).

3. None

4. No

**Answer:** Yes, use Collections.unmodifiableSet(Set s).

**13. When would you choose to use ArrayList over LinkedList in an application?**

1. None

2. ArrayList is preferred when there is more demand for get via index operations.

3. ArrayList is preferred when there are frequent insertions or deletions required in the application.

4. ArrayList is preferred when there is growing need of merging or sorting operations.

**Answer:** ArrayList is preferred when there are frequent insertions or deletions required in the application.

**14. Which of the following is a correct difference between HashMap and ConcurrentHashMap?**

1. None

2. HashMap maintains the inserted elements in random order while ConcurrentHashMap maintains elements in the sorted order.

3. HashMap can have one null key and any number of null values whereas ConcurrentHashMap does not allow null keys and null values.

4. HashMap is synchronized while ConcurrentHashMap is not synchronized.

**Answer:** HashMap can have one null key and any number of null values whereas ConcurrentHashMap does not allow null keys and null values.

**15.Which of the following method you need to override for using an object as key in a HashMap?**

1. hashKey()

2. None

3. hashCode()

4. hashValue()

**Answer:** hashCode()

**16 Which of the following is a correct difference between ArrayList and LinkedList?**

1. ArrayList uses a single linked list whereas the LinkedList uses dynamic array.

2. ArrayList uses a doubly linked list whereas the LinkedList uses dynamic array.

3. ArrayList uses a dynamic array whereas the LinkedList uses doubly linked list.

4. None

**Answer:** ArrayList uses a dynamic array whereas the LinkedList uses doubly linked list.