1.Describe the problem generics address.

Generics offer the remedy of code redundancy and type safety by reusable, type-safe code but without a fixed declared data type. In the absence of generics, object-based programming was used by programmers, and type casting at compile time and runtime errors were the consequences. Generics make type checking possible at compile time, reducing the frequency of errors, and improving performance by eliminating boxing/unboxing. Generics avoid code redundancy by making one class or one method work for various types of data, thus making programs maintainable, efficient, and scalable.

2. How would you create a list of strings, using the generic List class?

To create a list of strings using the generic List<T> class in C#, you define a List<string> and add elements to it. The List<T> class provides type safety and dynamic resizing.

Example:

```
List<string> names = new List<string>();
names.Add("Alice");
names.Add("Bob");
names.Add("Charlie");

foreach (string name in names)
{
   Console.WriteLine(name);
}
```

3. How many generic type parameters does the Dictionary class have?

C#'s Dictionary class has two generic type parameters, <TKey, TValue>. The first one is the key type, and the second one is the value type, offering type safety and proper storage of key-value pairs.

Example:

```
Dictionary<int, string> students = new Dictionary<int, string>();
students.Add(1, "Alice");
students.Add(2, "Bob");
```

4. True/False. When a generic class has multiple type parameters, they must all match.

False.

5. What method is used to add items to a List object?

The ‘Add ‘method in C# is used to insert elements into a ‘List<T>’, placing new items at the end while automatically expanding the list’s capacity. It enforces type safety by only allowing values that match the defined generic type. For instance, in a ‘List<int>’, only integers can be added. This method simplifies collection management by eliminating manual resizing concerns, making it a key function for handling dynamic data efficiently in applications.

6. Name two methods that cause items to be removed from a List.

Two methods that remove items from a List<T> in C# are Remove and Remove At.

1. Remove(T item) – Removes the first occurrence of the specified item from the list.
2. RemoveAt(int index) – Removes the item at the specified index.

7. How do you indicate that a class has a generic type parameter?

To indicate that a class has a generic type parameter, you use **angle brackets (<T>)** after the class name. The T represents a placeholder for the actual data type, which is specified when creating an object of the class.

8. True/False. Generic classes can only have one generic type parameter.

False.

9. True/False. Generic type constraints limit what can be used for the generic type.

True.

10. True/False. Constraints let you use the methods of the thing you are constraining to.

True.