1. *What is a class?*

**A class is a template used to create objects, and to define object data types and methods.**

**A class can have properties such as the data types and methods that may be used by the objects it is going to be defining.**

**All class objects should have their basic class properties.**

**Classes are categories and objects are items within each category.**

1. *What is an object?*

**An object is an instance of a particular class or subclass with the class's own methods, procedures and data variables.**

**An object is created or instantiated using the ‘new’ keyword in Java and using the constructor of the object’s class.**

**An object consists of State which is the attributes of the object, Behavior which is the methods of the object, and Identity which is the name of the object.**

1. *Explain this Ruby idiom: x ||= y.*

**x ||= y is a conditional assignment operator and it is equivalent to x || x = y.**

**If x is undefined, false or null, then evaluate y and assign the result to x.**

**If x is defined and is true, then y is not evaluated, and no assignment takes place.**

1. *What is the primary difference in these two code snippets?*

*// Java  
public boolean isEmpty(String s) {  
 return s.length() == 0;  
}*

*# ruby  
def empty?(s)  
 return s.size == 0  
end*

**Other than the fact that one is written in Java while the other is written in Ruby, the main difference is that in Java the parameter S is a String object hence it can only accept String as an argument.**

**In Ruby, the parameter S is not restricted to any object type hence it can accept integer value, String or any object type as an argument.**

**In Java, the return value has to be a boolean type whereas in Ruby, the return value can be of any object type.**

1. *What reasons require Refactoring of code?*

**Refactoring of Code is the process of restructuring and rearranging existing code without changing its external behavior, flow and logic.**

**The reasons to refactor code can be to improve code readability, to simplify code structure, to change code to adhere to a certain design framework, to improve maintainability, to improve performance, and to improve extensibility.**

1. *How would you measure the quality of a source code?*

**The number of steps or cyclomatic complexity should be acceptable in extremely large data set, extremely small data set and boundary test cases.**

**Every function in the source code should to be tested and be able to pass functional testing.**

**The structure of the objects and interaction between them should have high cohesion and low coupling.**

**The code should be able to perform all the functions that it is has to perform and be able to pass black box testing.**

**Every possible step in the code should be tested and be able to pass white box testing.**

**Each function of the code should be tested with large amount of input and be able to pass stress testing.**

**The structure of the objects and classes should adhere to the four principles of Object Oriented Programming which is Encapsulation, Data Abstraction, Inheritance and Polymorphism.**

1. *What do you feel is the most promising new technology in web / software development and why?*

**One of the very promising trends I see in web / software development is Single Pages Applications also known as SPAs.**

**In short, it is a website that does not require any reload and refresh. Instead, it uses JavaScript to rewrite the content on the page.**

**Single Pages Applications are developed with JavaScript frameworks like Angular, Meteor.js, React, Ajax.**

**The reasons why I think Single Pages Applications is a promising new technology:**

* **It is much faster than ordinary websites because there is no need for cookies, storage-requests, and form-submissions and sessions for state tracking.**
* **Due to the fact that it has only one page, it is easy to change the user interface design.**
* **Clients need not send any requests to the server to download pages because the entire application uses only one page. Hence, it saves bandwidth and time. The application would also be more responsive when it does not need to constantly send requests to the server to request for pages.**