Quiz 1 (Duration: 2 hours)

1. What is the difference between String, StringBuilder and StringBuffer?

2. String s1 = "Jack" ; String s2 = new String("Jack"). Check: s1 == s2? s1.equals(s2)?

3. Write "main" method

4. What is multiple inheritance? Does Java support it?

5. Difference between Abstract class and Interface

6. What is marker interface? Given an example of maker interface

7. Write Java program to explain static and dynamic polymorphism

8. Write Java program to create a Singleton design pattern

9. Write Java program to create a Factory design pattern

10. Difference between ArrayList and LinkedList and their time complexity in insert and read operation

11. If you define a customized "Student" class (id, name, age, address) and you want to save it to a hashmap as map key, what do you need to do in the Student class? Write Java program to show your implementation, Assume Student is differentiated by the id and name;

12. Explain how HashMap works internally

13. If you want to remove one element from an arraylist, is it safe to use for loop? If not, what to use?

14. What is checked and unchecked exception? Given each one an example

15. What are the two ways to create a java thread?

16. What is an ExecutorSerivce? Given an example of how you have used ExecutorService in practice.

17. Given an ArrayList including all US states, Write a program to return all states starting with letter "N", for example, New Jersey, New York etc.

18. What is functional interface?

19. Given an "Employee" table including columns: id, name, department, salary. Write a SQL to find the total salary for each department. Your result should 1) include two columns with column name as: Department and TotalSalary; 2) Only show results with total salary more than 2000; 3) sorted in descending order according to department.

20. difference between Final, Finally and Finalize

21. Difference between git rebase and git merge

22. Draw a diagram to show the data flow chain in enterprise project, your diagram show include: front end, database, dao, model, service, controller and security.

23. Write a program to reverse a string.