1) Draw **one possible example of a two-tiered and another example of a three-tiered architecture**. **Explain briefly** the placement of components in both architectures.

2) What is meant by a **mobile agent** in distributed systems?

3) In any distributed system there are three roles: **system administrator**, **application developer** and **end user**. For each of the following factors, which is the most important and relevant factor among the three roles? **Explain briefly** the reason for your role choice in each case and why the other two roles are not selected. **Place your comments in a table form as shown below**.

Factor	System Admin	App Developer	End User
Code Reusability			
Interoperability			
Portability			
Changing Technology			
System Throughput			
System Response Time			

4) Briefly describe the difference between **system authentication** and **system authorization** in distributed systems.

5) List **three** different characteristics for cloud systems.

6) Cloud systems can be classified based on deployment into three models: **public**, **private** and **hybrid** clouds. Briefly discuss the difference between the three models.

7) Describe briefly the different characteristics that should be available in any distributed system **transaction.**

8) What is meant by **committing** a **transaction** in a distributed system?

9) What is meant by a **Java Socket**?

10) **Describe briefly** the purpose of **Java RMI.** Draw a sample diagram that shows the **Java RMI architecture** and describe briefly all its components.

11) Propose a design that can be used to develop an online **X-O game** using Java RMI. Describe your design using both figures and text.