

**END SEMESTER ASSESSMENT (ESA) - May 2023****UE19CS352 - Cloud Computing****Total Marks : 100.0**

**1.a. List and explain briefly the relative merits and demerits of SaaS, IaaS and PaaS models of cloud deployment Answer: (6.0 Marks)**

**1.b. What is serverless computing? List the advantages of serverless computing. Give an example real-world cloud service that employs serverless computing. (4.0 Marks)**

**1.c. What is the difference between SOA and microservices? What are Rest APIs? and What is the role they play in implementing SOA/microservices? (4.0 Marks)**

1.d. What is elasticity? How is it different from scalability? Give an example each to clearly distinguish these concepts (6.0 Marks)

2.a. List and Explain any two similarities and differences between VMs and Containers (4.0 Marks)

2.b. What are namespaces with respect to containers? Explain PID and UTS namespaces in linux. (3.0 Marks)

**2.c. What are controller-manager, kubelets and pods in Kubernetes? Explain with a diagram where each of them execute – on master or worker?** (7.0 Marks)

2.d. What is the difference between hot migration and cold migration? Explain pre-copy and post-copy techniques of hot migration.

(6.0 Marks)

3.a. Explain the following consistency models

Strict Consistency

Sequential Consistency

Causal Consistency

Pipelined Random Access Memory Consistency

(8.0 Marks)

3.b. Explain Lustre Architecture with a neat sketch and describe its functioning.

How does this differ from Gluster?

(8.0 Marks)

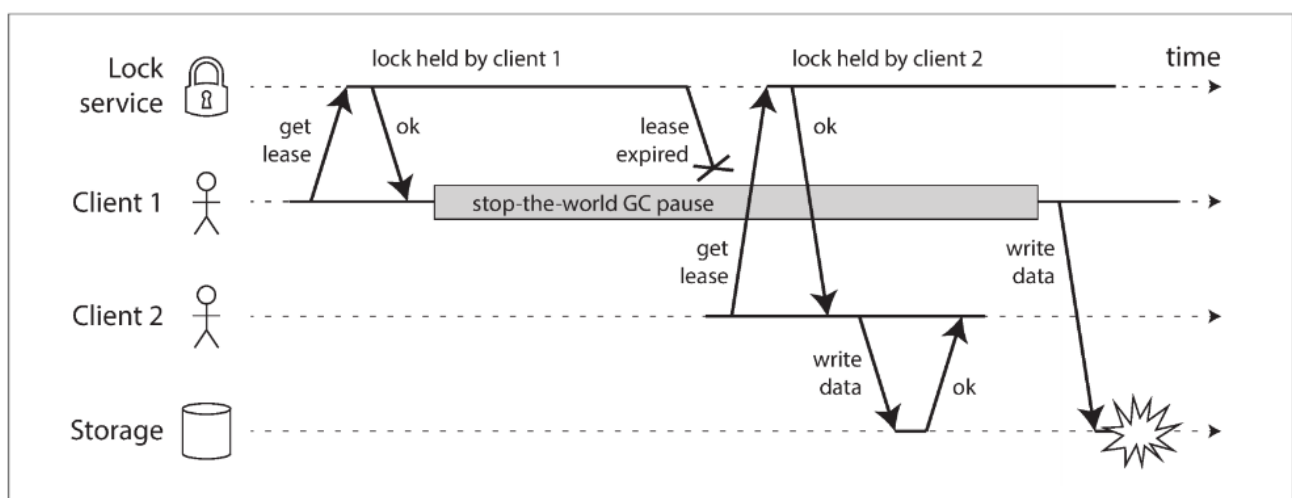
3.c. Name any two object storage services and two database services (4.0 Marks)

4.a. Explain the following  
EDoS attack  
Heartbeat and Probing  
Failover Strategy  
Types of faults

(8.0 Marks)

4.b. Explain Bully Algorithm. What is the number of messages that need to be passed in the best-case scenario. (5.0 Marks)

4.c. The following diagram shows an implementation of distributed lock. What went wrong and why? Explain with a neat diagram, what can be done to avoid such errors.



(7.0 Marks)

5.a. What is Cloud Bursting? Explain how Cloud Bursting can be beneficial to the cloud user. (6.0 Marks)

5.b. What is a reverse proxy? What are the benefits of using a reverse proxy? (6.0 Marks)

5.c. **Explain the following security design patterns**  
**Defense in Depth**  
**Honeypots**  
**Sandboxes**  
**Network Pattern (VM Isolation and Subnet Isolation)** (8.0 Marks)