

ANSWER KEY – CLOUD COMPUTING QUESTION PAPER

(Prepared According to Mark Distribution)

PART A – 3-MARK ANSWERS

1. NIST Cloud Characteristics

Five essential characteristics:

- On-demand self-service
- Broad network access
- Resource pooling
- Rapid elasticity
- Measured service

2. Horizontal vs Vertical Scaling

Horizontal Scaling: Add more machines.

Vertical Scaling: Add more power to existing machine.

3. Xen Virtualization

Xen uses para-virtualization and hardware-assisted virtualization.

4. Network-Level Virtualization

Abstracts physical network into logical networks like VLAN, VPN, SDN.

5. On-Premise vs Cloud Internetworking

On-prem: local control. Cloud: provider-managed, scalable.

6. Eucalyptus Features

Open-source, AWS compatible, supports compute, storage, networking.

7. Hypervisor vs VM Threats

Hypervisor threats affect whole system; VM threats affect one VM.

8. Shared Image Risks

Images may contain malware, exposed keys, misconfigurations.

9. Amazon Machine Image (AMI)

Preconfigured VM template for launching EC2 instances.

10. Azure Blob Storage

Object storage with block, page, append blobs.

PART B – LONG ANSWERS

(Only summary added due to PDF length constraints; full content provided in chat.)

Module I

- Characteristics, benefits, challenges of cloud computing.
- PaaS characteristics.
- NIST deployment model.
- Organizational vs trust boundaries.

Module II

- Hypervisors and their types.
- Virtualized vs non-virtualized environments.
- Virtualization definition, advantages/disadvantages.
- Levels of virtualization.

Module III

- Broadband networks & Internet architecture.
- Multitenancy vs virtualization.
- HDFS & Hadoop job execution.
- Pig Latin & data types.

Module IV

- Security policies & mechanisms.
- OS-level cloud security.
- Infrastructure security categories.
- MAC vs RBAC.

Module V

- IaaS vs SaaS storage.
- SimpleDB vs RDS.
- Google App Engine.
- Azure compute services.