

Maximum Marks: 60

Q.1

- i. Which of the following architectural layer is used as front end in cloud computing? 1
 - (a) Client
 - (b) Cloud
 - (c) Middleware
 - (d) Top
- ii. Geographic distribution of data across a cloud provider's network is a problem for many enterprises mainly because it- 1
 - (a) Breaks compliance regulations
 - (b) Adds latency
 - (c) Raises security concerns
 - (d) Makes data recovery harder
- iii. Bare-metal hypervisor is a term associated with- 1
 - (a) Full Virtualization
 - (b) Para Virtualization
 - (c) Hardware-Assisted Virtualization
 - (d) All of these
- iv. Point out the wrong statement- 1
 - (a) Full virtualization requires that the host operating system provide a virtual machine interface for the guest operating system and that the guest access hardware through that host VM
 - (b) Guest operating systems are a part of ring 0 in para virtualization
 - (c) VMM are involved in virtualization process
 - (d) None of these

P.T.O.

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- v. The _____ is something that you can obtain under contract from your vendor. **1**
 (a) PoS (b) QoS (c) SoS (d) All of these
- vi. Which of the following is most complete cloud computing service model? **1**
 (a) PaaS (b) IaaS (c) DRaaS (d) SaaS
- vii. Which of the following is key mechanism for protecting data? **1**
 (a) Authorization (b) Auditing
 (c) Authentication (d) All of these
- viii. Point out the correct statement- **1**
 (a) Different types of cloud computing service models provide different levels of security services.
 (b) Adapting your on-premises systems to a cloud model requires that you determine what security mechanisms are required and mapping those to controls that exist in your chosen cloud service provider
 (c) Data should be transferred and stored in an encrypted format for security purpose
 (d) All of these
- ix. Point out the correct statement- **1**
 (a) SQL Server is having enormous impact in cloud computing
 (b) Amazon.com's services represent the largest pure Infrastructure as a Service (IAAS)
 (c) EC2 is a Platform as a Service (PaaS) market
 (d) None of these
- x. Which of the following features regarding Google App Engine is not correct? **1**
 (a) Open & flexible
 (b) Support for popular programming languages
 (c) Monitoring, Logging & Diagnostics
 (d) None of these
- Q.2 i. Define Cloud Computing as per NIST. List any two Cloud Service Provider (CSP) along with their cloud application. **4**
 ii. Explain the following Cloud Computing characteristics with suitable examples: **6**
 Measured Service, Resource Pooling, Rapid Elasticity

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- OR iii. Explain types of Clouds (deployment models) in Cloud Computing with examples. **6**
- Q.3 i. What do you understand by Hypervisor? Explain its components. **3**
 ii. Elaborate Full-Virtualization along with its ring diagram and examples. Justify the statement – “The Virtual Machine Monitor is responsible for actually executing commands on the CPU's and performing Binary Translation (BT)”. **7**
- OR iii. Describe the terms: **7**
 (a) Cloud Service Management (b) Type-2 Virtualization
- Q.4 i. Explain any two methods for eliminating Single Point of Failure (SPOF) at network layer? **3**
 ii. Describe the services PaaS and SaaS with examples by explaining which services are managed by the users and the providers. Also, define the term “vendor lock-in” with context to platform provided services. **7**
- OR iii. Explain SLA and QoS parameters. Also, explain approaches for VM backup as a part of business continuity plans in VDC. **7**
- Q.5 i. Define Role Based Access Control (RBAC). Suggest possible security mechanisms for Data-in-flight and Data-at-rest with context to cloud environments. **4**
 ii. Elaborate following cloud security threats with examples. **6**
 Hyperjacking, Denial of Service (DoS) attacks.
- OR iii. Explain in detail various components involved in virtualization security (compute level). **6**
- Q.6 Write short note on any two: **5**
 i. AWS components (for compute and storage services) **5**
 ii. Open Stack **5**
 iii. Google App Engine **5**

Marking Scheme IT3CO23 Cloud Computing

Q.1	i.	Which of the following architectural layer is used as front end in cloud computing? (a) Client	1
	ii.	Geographic distribution of data across a cloud provider's network is a problem for many enterprises mainly because it- (a) Breaks compliance regulations	1
	iii.	Bare-metal hypervisor is a term associated with- (a) Full Virtualization	1
	iv.	Point out the wrong statement- (a) Full virtualization requires that the host operating system provide a virtual machine interface for the guest operating system and that the guest access hardware through that host VM	1
	v.	The _____ is something that you can obtain under contract from your vendor. (b) QoS	1
	vi.	Which of the following is most complete cloud computing service model? (d) SaaS	1
	vii.	Which of the following is key mechanism for protecting data? (d) All of these	1
	viii.	Point out the correct statement- (d) All of these	1
	ix.	Point out the correct statement- (b) Amazon.com's services represent the largest pure Infrastructure as a Service (IAAS)	1
	x.	Which of the following features regarding Google App Engine is not correct? (d) None of these	1

Q.2	i.	Definition	2 Marks	4
		CSP and application.	2 Marks	
	ii.	For each characteristics	2 Marks each (2 Marks*3)	6
OR	iii.	For each deployment models	1.5Mark each (1.5 Marks*4)	6

Q.3	i.	Hypervisor components.	1 Mark	3
			2 Marks	
	ii.	Explanation	2 Marks	
		Ring diagram	2 Marks	
		Example	1 Mark	
		Statement justification	2 Marks	
OR	iii.	(a) Cloud Service Management	3.5 Marks	7
		(b) Type-2 Virtualization	3.5 Marks	
Q.4	i.	Each method	1.5Mark each (1.5 Marks*2)	3
	ii.	PaaS	3 Marks	
		SaaS	3 Marks	
		vendor lock-in	1 Mark	
OR	iii.	SLA	1.5 Marks	7
		QoS parameters	1.5 Marks	
		VM backup approaches	4 Marks	
Q.5	i.	RBAC	1 Mark	4
		Security mechanisms for Data-in-flight	1.5 Marks	
		Data-at-rest	1.5 Marks	
	ii.	For each thread	2 Marks each (2 Marks*3)	
OR	iii.	For explanation	6 Marks	6
Q.6	i.	Short note	5 Marks	5
	ii.	Short note	5 Marks	
	iii.	Short note	5 Marks	
