

CBCS SCHEME

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21CS72

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025

Cloud Computing

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. With a neat diagram, explain cloud computing and its historical development. (10 Marks)
- b. List the characteristics and benefits of cloud computing. (10 Marks)

OR

- 2 a. Explain in brief the services provided by the following cloud service provider:
 - i) Amazon web service
 - ii) Microsoft azure
 - iii) Google AppEngine. (10 Marks)
- b. Write a note on challenges in cloud computing. (10 Marks)

Module-2

- 3 a. Define virtualization and explain hardware level virtualization with its advantages. (10 Marks)
- b. Discuss the taxonomy of virtualization techniques at different levels. (10 Marks)

OR

- 4 a. What are the characteristics of virtualized environment? (10 Marks)
- b. Explain with a neat diagram Type-I and Type-II hypervisor. (10 Marks)

Module-3

- 5 a. Explain the different types of cloud. (10 Marks)
- b. What is IaaS? Explain its reference implementation with a neat diagram. (10 Marks)

OR

- 6 a. Explain the economics of the cloud. (10 Marks)
- b. What does the acronym SaaS mean? How does it relate to cloud computing? (10 Marks)

Module-4

- 7 a. Analyze the various cloud security risks that organization face when utilizing cloud computing services. (10 Marks)
- b. Explain the security risks posed by a management OS. (10 Marks)

OR

- 8 a. Discuss the traditional concept of trust and trust necessary for online activities. (10 Marks)
- b. Explain in detail virtual machine security. (10 Marks)

Module-5

- 9 a. Describe Amazon EC2 and its basic features. (10 Marks)
- b. Analyze how cloud computing technology can be applied to support remote ECG monitoring. (10 Marks)

OR

- 10 a. What is a bucket? What type of storage does it provide? (10 Marks)
- b. Examine the core components of AppEngine. (10 Marks)

*Fault tolerance
Recovery risk*

maintain

Important Note: 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8=50, will be treated as malpractice.

Cloud Computing – 21CS72

Dec 2024/Jan 2025

[illegible]

	2. Downtime & Availability 3. Compliance & Legal issues 4. Vendor lock 5. Cost Management 6. Data Control 7. Latency & Performance (Any 5 points from above – Each carries 2M)	
3a	Virtualization It is a technology that allows multilink virtual environments to run on a single physical hardware system. Hardware level Virtualization <ol style="list-style-type: none"> 1. Virtualization Extensive 2. Hypernsive Supply 3. Enhanced Isolation 4. Reduced overhead (Each carries 2 Marks)	2M 8M
3b	Taxonomy of virtualization Techniques <ol style="list-style-type: none"> 1. Process level techniques 2. System level techniques i. Hardware virtualization ii. Operating system virtualization iii. Application virtualization iv. Network virtualization v. Storage virtualization	2M 8M
OR		
4a	Characteristics of virtualized environment <ol style="list-style-type: none"> 1. Isolation 2. Hardware Independence 3. Resource pooling 4. Scalability 5. Efficient Resource utilization 6. Live migration 7. Security (Any five points – Each carries 2 Marks)	10M
4b	Type I and Type II Hypervisor Type I – Runs directly on the top of the hardware. Type II- Requires support of an operating system to provide virtualization. Type I Characteristics <ol style="list-style-type: none"> 1. Performance 2. Security 3. Example Type II Characteristics <ol style="list-style-type: none"> 1. Ease of use 	4M 3M 3M

	<ol style="list-style-type: none"> 3. Compliance and legal objectives 4. Transparency and accountability 5. Vendor lock in concern 6. Reputation and reviews 7. Authentication and access control 	
8b	<p>Virtual machine security</p> <ol style="list-style-type: none"> 1. Isolation and segmentation 2. Hypervisor security 3. Access control and authentication 4. Network security 5. Data Protection 6. VM Hardening 7. Monitoring and Logging 8. Incident Response and Recovery 	10M
9a	<p>Amazon EC2 and its Features</p> <p>Amazon Elastic compute cloud is a web service provided by AWS, that offers web service provided by AWS, that offers scalable computing capacity in the cloud features.</p> <ol style="list-style-type: none"> 1. Scalability 2. Flexible pricing methods 3. Variety of instance types 4. Virtual private cloud 5. Elastic load balancing 6. Security 	10M
9b	<p>Cloud computing applied to remote ECG monitoring</p> <ol style="list-style-type: none"> 1. Data collection 2. Data transmission 3. Data storage 4. Data processing and analysis 5. Collaboration and accessibility 6. Security and compliance 7. Cost efficiency 	10M
10a	<p>Bucket</p> <p>Bucket is a fundamental container in cloud storage services. Buckets are used to store and organize data objects.</p> <p>Types of storage provided by buckets</p> <ol style="list-style-type: none"> 1. Object storage 2. Storage classes 3. Backup and archive solutions 4. Data sharing and collaboration 	10M
10b	<p>Core components of APPEngine</p> <ol style="list-style-type: none"> 1. Services 2. Versions 3. Instances 	10M

	<ul style="list-style-type: none">4. Scaling5. Datastore6. Cloud Firestore7. Cloud storage8. Task queues9. Memcache10. Routing cloud balancing11. Monitoring and logging12. Security features	
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