CMR Institute of Technology, Bangalore			
Department(s): Information Science & Engineering			
Semester: 06	Section(s): A,B,C	Lectures/week: 04	
Subject: Cloud Computing and Security		Code: BIS613D	
Course Instructor(s): Dr.Senthil Velan S, Dr.Srividya. R, Prof. Sneha P			
Course duration: January 2026 – May 2026			

Question Bank

Module 1: Distributed System Models and Enabling Technologies

1. Explain scalable computing over the Internet with examples. (10 M)
2. Discuss the technologies for network-based systems in detail. (8 M)
3. Compare and contrast various system models for distributed and cloud computing. (7M)
4. Explain diff. software environments for distributed systems & cloud computing. (10 M)
5. Analyze the role of performance, security, and energy efficiency in cloud computing.
6. How do distributed systems support cloud computing? Illustrate with examples. (10 M)
7. Explain different types of cloud computing system models with diagrams. (10 M)
8. Discuss the impact of network technologies on cloud computing performance. (8 M)
9. Compare traditional computing with scalable computing over the Internet. (8 M)
10. How does energy efficiency impact cloud-based distributed systems? (10 M)

Module 2: Virtual Machines and Virtualization of Clusters and Data Centers

1. What are the different implementation levels of virtualization? Explain in detail. (10 M)
2. Discuss the structure, tools, and mechanisms used in virtualization. (10 M)
3. How is virtualization applied to CPU, memory, and I/O devices? (8 M)
4. Explain the concept of virtual clusters and their role in resource management. (12 M)
5. What are the advantages and disadvantages of data center automation? (8 M)
6. Compare different virtualization techniques used in cloud computing. (10 M)
7. Explain the significance of hypervisors in virtualization. (10 M)
8. How does virtualization improve resource management in cloud computing? (8 M)
9. Discuss the challenges faced in virtualizing data centers. (10 M)
10. Explain the role of resource allocation in virtualized cloud environments. (8 M)

Module 3: Cloud Platform Architecture over Virtualized Datacenters

1. Explain different cloud computing service models with examples. (12 M)
2. How do data centers contribute to cloud computing architecture? (10 M)
3. Discuss the design of compute and storage clouds. (10 M)
4. Compare public cloud platforms: GAE, AWS, and Azure. (8 M)
5. Explain inter-cloud resource management and its importance. (10 M)
6. How does cloud networking differ from traditional networking? (8 M)
7. What are the architectural challenges in building a cloud data center? (6 M)
8. Discuss the security challenges faced in cloud data centers. (10 M)
9. Compare the different public cloud platforms and their use cases. (8 M)
10. Explain the key components of cloud platform architecture. (10 M)

Module 4: Cloud Security

1. Discuss the top security concerns for cloud users. (10 M)
2. What are the major risks in cloud computing, and how can they be mitigated? (8 M)
3. Explain cloud data encryption and its role in securing cloud storage. (12 M)
4. Discuss different security mechanisms for database services in the cloud. (10 M)
5. Explain OS and VM security in cloud environments. (10 M)
6. How does XOAR ensure a trusted hypervisor? (8 M)
7. Discuss security risks posed by shared images & management OS in cloud. (8 M)
8. Explain different cloud security defense strategies. (10 M)
9. Discuss reputation-guided protection techniques for cloud security. (10 M)
10. Explain how mobile devices introduce additional security risks in cloud computing.(10 M)

Module 5: Cloud Programming and Software Environments

1. Discuss the key features of cloud and grid platforms. (10 M)
2. Explain various parallel and distributed computing paradigms. (10 M)
3. How does Google App Engine (GAE) support cloud programming? (8 M)
4. Discuss the programming environment of Amazon AWS and its applications. (10 M)
5. Explain Microsoft Azure's programming support for cloud applications. (10 M)
6. What are the emerging cloud software environments? Discuss their impact. (10 M)
7. Compare and contrast different cloud programming models. (8 M)
8. Explain the importance of scalability in cloud programming. (10 M)
9. Discuss the challenges faced in cloud software development. (8 M)
10. How does cloud computing enable big data applications? (10 M)