

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025***Sixth Semester**Artificial Intelligence and Data Science***CCS335 - Cloud Computing****(Common to Information Technology)****Regulations - 2021****Duration : 3 Hrs****Maximum : 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BLT	CO	Marks
1.	Define cloud deployment models with suitable examples.	L1	1	2
2.	List the main components of the NIST Cloud Computing Reference Architecture.	L2	1	2
3.	What is a hypervisor, and how does it play a key role in enabling virtualization?	L2	2	2
4.	List any four types of virtualizations and briefly define them.	L1	2	2
5.	Differentiate Docker container with Docker image.	L4	3	2
6.	Define Application Virtualization with an example.	L1	3	2
7.	List key features of Google App Engine that support cloud-based application development.	L2	4	2
8.	Write the purpose of OpenStack in a cloud deployment environment.	L2	4	2
9.	Highlight the concept of hyperjacking and its impact in a virtualized system.	L2	5	2
10.	List two significant challenges in implementing Identity and Access Management (IAM) in cloud platforms.	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a i Compare and contrast the different cloud service models (IaaS, PaaS, SaaS) with real-world examples.	L4	1	8
	i Evaluate the architectural design of compute and storage clouds by examining key design considerations that influence performance, scalability, and reliability.	L5	1	8
	Or			
	b i Apply the NIST Cloud Computing Reference Architecture to design a cloud solution for an e-learning platform. Justify your choices.	L4	1	8
	i Evaluate the design challenges in building scalable and secure cloud infrastructure. Propose possible solutions.	L5	1	8
12.	a i Explain the taxonomy of virtual machines with neat classification. Provide examples for each type.	L2	2	8

	i	Compare Full Virtualization and Para Virtualization in terms of architecture, performance, and application suitability.	L4	2	8
	i				
		Or			
	b i	Explain how hardware virtualization supports the creation of a virtual lab environment in a computer science department.	L2	2	8
	i	Evaluate different implementation levels of virtualization and recommend the best approach for a cloud service provider. Justify your answer.	L4	2	8
	i				
13.	a i	Explain the architecture and components of Docker. How does it support container-based virtualization?	L2	3	8
	i	Differentiate between Containers and Virtual Machines in terms of performance, isolation, and resource usage.	L4	3	8
	i				
		Or			
	b i	Explain the different types of virtualization, including desktop, network, storage, and system-level OS virtualization.	L2	3	8
	i	Differentiate between block level storage virtualization and file level storage virtualization.	L4	3	8
	i				
14.	a i	Compare and contrast Amazon AWS and Microsoft Azure in terms of services and deployment models.	L2	4	8
	i	A mid-sized educational institution is planning to deploy a private cloud infrastructure to manage its IT resources efficiently. The institution wants to support services such as online labs, storage, and faculty/student resource sharing within its campus network. They consider Eucalyptus as their cloud software platform due to budget constraints and the need for open-source flexibility. Evaluate the suitability of Eucalyptus as the chosen cloud software environment for this institution. In your response, analyze its architecture and working, and justify how it meets the needs of scalability, compatibility with existing infrastructure, and ease of deployment.	L4	4	8
	i				
		Or			
	b i	Design and explain a simple cloud application deployment scenario using Google App Engine. Mention its benefits.	L2	4	8
	i	Evaluate the suitability of OpenStack for private cloud implementations. Highlight its major components and features.	L4	4	8
	i				
15.	a i	Explain the following virtualization system-specific attacks with examples: Guest hopping, VM migration attack, and hyperjacking.	L2	5	8
	i	Analyze the security challenges associated with cloud data storage and suggest suitable countermeasures.	L4	5	8
	i				
		Or			
	b i	Explain the principles of IAM to design a secure access control model for a cloud-based application.	L2	5	8
	i	Evaluate the components of IAM architecture and discuss its effectiveness in securing cloud environments.	L4	5	8
	i				