Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 60010

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025
Seventh Semester
Electrical and Electronics Engineering
U19ITOE3 – BASICS OF CLOUD COMPUTING
(Common to ECE, BME & BT)
(Regulation 2019)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6.- Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	A cloud provider balances latency vs. throughput in a distributed system. Suggest a performance metric suitable for such a case.	2	K2	CO1
2.	Compare the energy efficiency trade-offs when scaling applications across homogeneous vs. heterogeneous distributed systems.	2	K2	CO1
3.	List the resource contention challenge when multiple VMs run memory-intensive workloads on the same host.	2	K2	CO2
4.	State a virtualization mechanism suitable for supporting heterogeneous I/O devices in a cloud data center.	2	K2	CO2
5.	List the trust management concerns when multiple public cloud platforms share inter-cloud resources.	2	K2	CO3
6.	State an interconnection network topology that balances fault tolerance with minimal latency in a cloud data center.	2	K2	CO3
7.	Outline the limitations of using Eucalyptus in enterprise-level deployments.	2	K2	CO4
8.	Identify a programming paradigm that best fits a large-scale machine learning workload on a cloud platform.	2	K2	CO4
9.	Suggest a metric to measure the performance of distributed systems in IoT-enabled smart cities.	2	K2	CO5
10.	State a key enabler that allows seamless IoT integration with ubiquitous clouds.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	A financial analytics platform needs to scale from 1,000 to 100,000 users. Explain in detail about how different distributed system models handle scalability, security, and performance simultaneously.	13	K2	CO1
		(OR)			
	b)	In a smart healthcare network, assess how the software environment impacts fault tolerance, energy efficiency, and data privacy.	13	K2	CO1
12.	a)	A university wants to deploy a virtual cluster for high-performance computing research. Examine how CPU, memory, and I/O virtualization can be optimized to meet diverse workload requirements.	13	K2	CO2
		(OR)			
	b)	In a large-scale data center, delineate a resource management strategy using virtualization that minimizes operational costs while ensuring SLA compliance.	13	K2	CO2
13.	a)	A multi-national corporation integrates AWS, Azure, and Google Cloud to form an inter-cloud strategy. Expound the challenges in resource orchestration, interoperability, and compliance.	13	K3	CO3
		(OR)			
	b)	A government agency is designing a secure public cloud for sensitive data. Describe how architectural decisions in compute and storage clouds influence scalability and trust management.	13	K3	CO3
14.	a)	An educational startup plans to build a SaaS platform using Manjrasoft Aneka and OpenNebula. List the challenges in integration, programming support, and cost-efficiency.	13	K3	CO4
		(OR)			
	b)	A weather forecasting agency must choose between AWS, Azure, and OpenStack for parallel simulation workloads. Compare their programming support and scalability.	13	K2	CO4
15.	a)	Online social networking platforms increasingly rely on IoT-driven data. How does ubiquitous cloud support enhance scalability and privacy-preserving analytics?	13	K3	CO5
		(OR)			
	b)	Explain in detail about a ubiquitous cloud-enabled IoT framework for intelligent transportation systems that addresses latency, security, and large-scale data management challenges.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	An e-commerce enterprise aims to move its services to a hybrid distributed cloud. Develop a comprehensive system model that ensures scalability, energy efficiency, and secure customer data handling while maintaining consistent performance.	15	K2	CO1
		(OR)			
	b)	A global SaaS provider requires near-zero downtime during peak traffic periods. Develop a comprehensive virtualization-based architecture for VM migration, load balancing, and automated scaling.	15	K2	CO2