

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: 6016**

M.E. / M.Tech. DEGREE END-SEMESTER EXAMINATIONS – JUNE / JULY 2024

Second Semester

Information Technology

P23IT205 – CLOUD COMPUTING TECHNOLOGIES

(Regulation 2023)

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.	Why do businesses opt for virtual machines instead of original hardware?	2	K4	CO1
2.	What is the difference between a clone and a template in virtualization?	2	K2	CO1
3.	Compare on-premises infrastructure with cloud-based architectures.	2	K1	CO2
4.	What does “Anything as a Service (XaaS)” mean in cloud computing?	2	K2	CO2
5.	What advantages does Elastic Container Service for Kubernetes offer?	2	K1	CO3
6.	Which AWS service facilitates continuous integration and deployment?	2	K4	CO3
7.	List the characteristics of Windows Azure Storage.	2	K1	CO4
8.	Define the service model in Windows Azure.	2	K1	CO4
9.	List the factors to consider when configuring and running a Hadoop job.	2	K2	CO5
10.	How does Hadoop achieve fault tolerance in distributed computing?	2	K3	CO5

PART – B

(5 x 13 = 65 Marks)  
Marks KL CO

Q.No.	Questions	Marks	KL	CO
11.	a) Describe the various implementation levels of virtualization, including full virtualization, paravirtualization, and hardware-assisted virtualization. Compare their performance, compatibility, and resource overhead.  (OR)	13	K2	CO1
	b) Explain how virtual clusters are formed and managed in virtualized environments. Discuss the role of resource management techniques, such as load balancing and dynamic resource allocation, in optimizing cluster performance.	13	K3	CO1
12.	a) Compare the cost of deploying a private cloud infrastructure with a public cloud infrastructure for a company ABC with specific computing needs over a five-year period. Consider factors such as hardware costs, maintenance, and operational expenses.  (OR)	13	K4	CO2
	b) Explain the various cloud deployment models, including public, private, hybrid, and community clouds. Compare and contrast their advantages and use cases.	13	K2	CO2
13.	a) Discuss the process of setting up AWS storage solutions, including Amazon S3 (Simple Storage Service), Amazon EBS (Elastic Block Store), and Amazon Glacier. Discuss best practices for data storage, security, and access control.  (OR)	13	K3	CO3
	b) Analyze Elastic Compute Cloud (EC2) in the context of instance types, auto-scaling, and spot instances. Discuss strategies for optimizing EC2 performance, cost, and reliability in complex deployment scenarios.	13	K4	CO3
14.	a) Explain the concept of the Fabric Controller in Windows Azure. How does it manage resources and orchestrate the deployment and scaling of cloud services?  (OR)	13	K2	CO4
	b) Explain the various storage services offered by Windows Azure, such as Blob storage, Table storage, and Queue storage. Discuss their use cases and performance considerations.	13	K2	CO4

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| 15. | a) Design a MapReduce application to calculate the average word count in a large text dataset stored in HDFS. Specify the input and output parameters for the job.    | 13 | K5 | CO5 |
|     | (OR)  |    |    |     |
|     | b) Design a Hadoop file system layout for storing log files generated by web servers. Consider factors such as data locality and ease of data retrieval for analysis. | 13 | K6 | CO5 |

PART – C

		(1 x 15 = 15 Marks)		
Q.No.	Questions	Marks	KL	CO
16.	a) Describe the taxonomy of virtual machines, including their classification based on functionality, architecture, and implementation techniques. Give suitable real-world examples for each category.	15	K2	CO1
	(OR)			
	b) Design a layered cloud architecture for a scalable and resilient application deployment. Identify potential challenges in designing a cloud architecture that ensures security, compliance, and regulatory requirements while maximizing performance and cost-efficiency. Give possible solutions or best practices to mitigate these challenges effectively.	15	K3	CO2