Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025

Date: 05-12-2025 **Time:** 01:00pm – 04:00pm

School: SOCSE	**Program:** B.Tech. CSE,CST,CEICSD	
Course Code : CSD3426	**Course Name:** Cloud Services for Big Data and Analytics	
Semester: VII	**Max Marks:** 100	**Weightage**: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	26	2	16	116	0

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **10Q x 2M=20M**

1.	What is cloud computing?	**2 Marks**	**L1**	**CO1**
2.	Give one example each of IaaS and SaaS.	**2 Marks**	**L2**	**CO1**
3.	Define 'hypervisor'	**2 Marks**	**L1**	**CO3**
4.	What is the key difference between full and para-virtualization?	**2 Marks**	**L2**	**CO3**
5.	What does 'combinatorial allocation' of resources refer to?	**2 Marks**	**L3**	**CO4**
6.	List two characteristics of a data-intensive application.	**2 Marks**	**L2**	**CO2**
7.	What is the primary goal of resource scheduling in the cloud?	**2 Marks**	**L3**	**CO4**
8.	How does an SLA benefit a cloud customer?	**2 Marks**	**L2**	**CO1**
9.	What is 'resource pooling' in cloud computing?	**2 Marks**	**L2**	**CO4**
10.	Why is server consolidation a major advantage of virtualization?	**2 Marks**	**L3**	**CO3**

Part B

Answer the Questions. **Total Marks 80M**

11.	**a.**	Discuss the major challenges faced in cloud computing.	**10 Marks**	**L4**	**CO 1**
		Or			
12.	**a.**	Explain the concept of multi-tenancy in cloud computing. What are the different levels of multi-tenancy?	**10 Marks**	**L4**	**CO 1**

13.	**a.**	Describe the "Borrowed Virtual Time (BVT)" scheduling algorithm.	**10 Marks**	**L4**	**CO 4**
		Or			
14.	**a.**	What is 'resource bundling'? Explain its importance with an example.	**10 Marks**	**L4**	**CO 4**

15.	**a.**	Explain how live migration of virtual machines works and its key benefits.	**10 Marks**	**L3**	**CO 4**
		Or			
16.	**a.**	Discuss the role of virtualization in disaster recovery strategies.	**10 Marks**	**L3**	**CO 4**

17.	**a.**	Analyze the security implications of using virtualization in a public cloud.	**10 Marks**	**L4**	**CO 4**
		Or			
18.	**a.**	Explain the process of creating and launching a virtual machine on a public cloud platform.	**10 Marks**	**L3**	**CO 3**

19.		Case Study: A government agency wants to migrate its citizen portal to the cloud but has strict data sovereignty requirements.	**20 Marks**	**L**	**CO**
	a.	Recommend a suitable cloud deployment model.		**L4**	**CO1, 4**
	b.	Suggest a key resource management policy to ensure high availability.		**L4**	**CO3, 4**
	c.	Justify your recommendations based on security and reliability.		**L4**	**CO3, 4**
		Or			

20.	**a.**	Propose a detailed resource management and scheduling strategy for a cloud-based online gaming platform that hosts real-time multiplayer matches.	**20 Marks**	**L5**	**CO4**

21.		Application Scenario: A media company needs to process and archive petabytes of video footage. The process involves both transcoding (compute-heavy) and long-term storage (data-heavy) phases.	**20 Marks**	**L5**	**CO4**
	a.	Identify the types of workloads in each phase and the primary resource management challenge.		**L5**	**CO4**
	b.	Propose a specific resource management strategy to handle both phases effectively.		**L5**	**CO4**
	c.	Justify how your strategy optimizes performance and cost.		**L5**	**CO4**
Or					
22.	**a.**	Design a comprehensive resource management and scheduling system for a multi-departmental university cloud platform serving needs from research (HPC) to administration (ERP) to e-learning (LMS).	**20 Marks**	**L5**	**CO4**