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**PRESIDENCY UNIVERSITY  
BENGALURU**

**SET-A**

**SCHOOL OF ENGINEERING  
END TERM EXAMINATION –MAY/JUNE 2024**

**Semester :** Semester II – 2023-24 MCA - 2023

**Date :** JUNE 07-2024

**Course Code :** CSA4005

**Time :** 9:30 AM-12:30 PM

**Course Name :** Cloud Computing

**Max Marks :**100

**Program :** MCA

**Weightage :** 50%

- Note:**
1. Answer ALL 5 FULL Questions.
  2. Each Full Question carries 20 Marks
  3. Scientific and non-programmable calculator are permitted.
  4. Do not write any information on the question paper other than Roll Number.

- 1.a. How do cloud environments support development and testing activities? [Knowledge] (C01) (04 Marks)
- 1.b. Compare Infrastructure as a Service (IaaS) with Platform as a Service (PaaS). Provide examples. [Comprehension] (C01) (06 Marks)
- 1.c. a) Describe the PaaS offering of GAE with a neat diagram. (C01) (10 Marks)  
b) Describe Hadoop with its implementation functions. [Application]
- OR**
- 2.a. Write short notes on Characteristics and benefits of Cloud Computing. [Knowledge] (C01) (04 Marks)
- 2.b. List the cloud deployment models and give a detailed note about them. [Comprehension] (C01) (06 Marks)
- 2.c. A global company has decided to offer video streaming solutions for business to share their ideas and presentations and pitch them to clients. They wish to adopt cloud scaling to enable larger bandwidth and speed. Which deployment model is best suited for the considered global company? Explain. [Application] (C01) (10 Marks)
- 3.a. Define virtualization and explain its significance in modern computing. [Knowledge] (C02) (04 Marks)
- 3.b. Explain the concept of Server consolidation and virtual machine migration with a neat diagram. [Comprehension] (C02) (06 Marks)
- 3.c. Elaborate each levels of virtualization which are implemented in Cloud Computing with neat diagram. [Application] (C02) (10 Marks)

**OR**

- 4.a. Describe the key components of a virtualization environment. (C02) (04 Marks)  
[Knowledge]
- 4.b. How does programming language-level virtualization differ from operating system-level virtualization? (C02) (06 Marks)  
[Comprehension]
- 4.c. A small business is considering adopting virtualization to optimize its IT infrastructure. Illustrate all the types of virtualization that could benefit the business, and explain how each type would improve efficiency. (C02) (10 Marks)  
[Application]
- 5.a. How does a logical network perimeter contribute to the security of cloud environments? (C03) (04 Marks)  
[Knowledge]
- 5.b. How does an SLA monitor track and enforce compliance with service level agreements in a cloud environment? (C03) (06 Marks)  
[Comprehension]
- 5.c. a) Describe IAM and its components. (C03) (10 Marks)  
b) Describe PKI with a neat diagram. [Application]
- OR**
- 6.a. How does data replication and redundancy contribute to the reliability of cloud storage devices? (C03) (04 Marks)  
[Knowledge]
- 6.b. Explain the process by which an automated scaling listener dynamically adjusts resources based on demand? (C03) (06 Marks)  
[Comprehension]
- 6.c. Your company stores confidential documents and files in a cloud storage service provided by a third-party vendor. You're concerned about unauthorized access to this data and want to implement encryption to mitigate the risk of data breaches. How would you ensure that data stored in the cloud is encrypted at rest? (C03) (10 Marks)  
[Application]
- 7.a. What development tools and services does AWS offer for building and deploying cloud-based applications? (C04) (04 Marks)  
[Knowledge]
- 7.b. Explain the basics of the Docker System with a neat diagram. (C04) (06 Marks)  
[Comprehension]
- 7.c. Explain how Cloud Haskell contributes to parallel programming in cloud environments. (C04) (10 Marks)  
[Application]
- OR**
- 8.a. What is Cloud Haskell, and how does it enable distributed computing in a cloud environment? (C04) (04 Marks)  
[Knowledge]
- 8.b. How does Docker simplify the process of packaging, distributing, and deploying software applications? (C04) (06 Marks)  
[Comprehension]
- 8.c. Differentiate between virtual machines and containers, highlighting a key advantage of containers. (C04) (10 Marks)  
[Application]
- 9.a. How does an audit monitor help organizations maintain compliance and security in the cloud? (C03) (04 Marks)  
[Knowledge]

- 9.b Describe Life Cycle of SLA with a neat diagram. **[Comprehension]** (C03) (06 Marks)
- 9.c Your company has migrated critical applications to a cloud provider's platform. However, you've notice performance degradation during peak usage hours, impacting user experience. How would you address this performance issue with the cloud provider based on the SLA? What metrics or performance target outlined in the SLA would you reference, and what steps would you take to ensure compliance with the agreed-upon service levels? **[Application]** (C03) (10 Marks)
- Or**
- 10.a How does Map Reduce facilitate distributed processing of large datasets in a cloud environment? **[Knowledge]** (C04) (04 Marks)
- 10.b What are some cloud-native services and features that leverage Docker containers for deployment an orchestration? **[Comprehension]** (C04) (06 Marks)
- 10.c Your organization operates across multiple cloud providers and wants to deploy its applications consistently across different cloud environments. How would you leverage Docker containers to achieve multi-cloud deployment consistency? Discuss strategies for building and packaging containerized applications that can be deployed seamlessly across various cloud platforms while maintaining compatibility and portability. **[Application]** (C04) (10 Marks)