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| Roll No. | | | | | | | | | | | | | | | | | | | |
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PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations - December 2025

Date: 08-12- 2025

Time: 01:00pm - 04:00pm

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|-----------------------------|--|-----------------------|--|
| School: SOCSE | Program: CSE | | |
| Course Code: CSE3515 | Course Name: Cloud Data Engineering | | |
| Semester: V | Max Marks: 100 | Weightage: 50% | |

| CO - Levels | C01 | C02 | C03 | C04 |
|--------------|-----------|-----------|-----------|-----------|
| Marks | 26 | 24 | 26 | 24 |

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. | List any two key benefits of cloud computing? | 2 Marks | L1 | C01 |
| 2. | Differentiate between Type-1 and Type-2 hypervisors? | 2 Marks | L1 | C01 |
| 3. | What is utility computing? | 2 Marks | L1 | C01 |
| 4. | Define High Throughput Computing (HTC). | 2 Marks | L2 | C02 |
| 5. | What is a "task" in task computing? | 2 Marks | L2 | C02 |
| 6. | Define cloud security. | 2 Marks | L2 | C03 |
| 7. | Mention two SaaS security controls. | 2 Marks | L3 | C03 |
| 8. | What is the role of MFA in IAM? | 2 Marks | L3 | C03 |
| 9. | List any two core AWS services. | 2 Marks | L4 | C04 |
| 10. | What is media cloud? | 2 Marks | L4 | C04 |

Part B

Answer the Questions.

Total Marks 80M

| | | | | | |
|-----------|----|---|----------|----|-----|
| 11. | a. | Explain the historical evolution of cloud computing from distributed systems to containerization. | 10 Marks | L1 | CO1 |
| | b. | Evaluate the strengths and weaknesses of public, private, hybrid, and community cloud deployment models in enterprise environments. | 10 Marks | L1 | CO1 |
| Or | | | | | |
| 12. | a. | Compare and contrast IaaS, PaaS, and SaaS service models with examples and advantages/disadvantages. | 10 Marks | L1 | CO1 |
| | b. | Differentiate between Type-1 and Type-2 hypervisors with examples. Discuss their relevance in cloud environments. | 10 Marks | L1 | CO1 |
| Or | | | | | |
| 13. | a. | Compare HTC and HPC in terms of architecture, workload types, communication model, and use cases. | 10 Marks | L2 | CO2 |
| | b. | Compare Hadoop MapReduce and Apache Spark in terms of architecture, performance, and suitable use cases | 10 Marks | L2 | CO2 |
| Or | | | | | |
| 14. | a. | Explain the entire workflow of task computing with diagrams and discuss its benefits. | 10 Marks | L2 | CO2 |
| | b. | Explain MPI architecture with reference to ranks, communicators, point-to-point, and collective communication. | 10 Marks | L2 | CO2 |
| Or | | | | | |
| 15. | a. | Explain major cloud security challenges including data breaches, insecure APIs, shared technology vulnerabilities, and insider threats with real-world incidents. | 10 Marks | L3 | CO3 |
| | b. | Discuss SaaS security principles such as IAM, encryption, monitoring, and compliance. Provide relevant examples | 10 Marks | L3 | CO3 |
| Or | | | | | |
| 16. | a. | Describe in detail the shared responsibility model across IaaS, PaaS, and SaaS with examples. | 10 Marks | L3 | CO3 |
| | b. | Examine the OWASP Top 10 and explain how these application vulnerabilities apply within cloud environments | 10 Marks | L3 | CO3 |

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|------------|-----------|--|-----------------|-----------|------------|
| 17. | a. | Analyze advances in cloud platforms in AI, serverless computing, edge computing, and multi-cloud integration. | 10 Marks | L4 | CO4 |
| | b. | Compare AWS, Azure, and Google Cloud in terms of strengths, market positioning, and key service offerings | 10 Marks | L4 | CO4 |
| Or | | | | | |
| 18. | a. | Describe the architecture of AWS including global infrastructure, service ecosystem, and reference architecture for a web application. | 10 Marks | L4 | CO4 |
| | b. | Analyze the core AWS services (EC2, S3, RDS, Lambda) and their role in building modern cloud applications | 10 Marks | L4 | CO4 |