

Question Paper consists of FIVE units, each carrying 14 marks
Each unit has TWO questions; either of them should be answered
All parts of a question must be answered at one place.

UNIT-I

Marks

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| 1. | a) | List and describe the main characteristics of Cloud Computing. | 7M |
| | b) | Discuss the System models for Distributed computing. | 7M |

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| 2. | a) | Elaborate Software environments for distributed systems. | 7M |
| | b) | Why is "Security and Energy Efficiency" a critical design goal in modern data centers? Explain. | 7M |

UNIT-II

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| 3. | a) | Illustrate Virtualization Tools and mechanisms in cloud computing. | 7M |
| | b) | Explain the challenge of "I/O Virtualization" in a virtualized environment. How does techniques like Direct Memory Access (DMA) remapping help address this challenge? | 7M |

(OR)

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| 4. | a) | Compare and contrast the different implementation levels of virtualization. | 7M |
| | b) | How does server virtualization contribute to Data Centre Automation? Discuss its impact on provisioning, load balancing, and disaster recovery. | 7M |

UNIT-III

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| 5. | a) | Describe the core architectural components of a public compute cloud. | 7M |
| | b) | Explain how a "Service-Oriented Architecture (SOA)" forms the conceptual basis for cloud platforms. | 7M |

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| 6. | a) | Compare and contrast the three fundamental cloud service models: IaaS, PaaS, and SaaS. | 7M |
| | b) | Discuss Service Oriented Architecture of could computing. | 7M |

UNIT-IV

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| 7. | a) | Explain the architecture and core components of the Google File System (GFS). | 7M |
| | b) | Describe the programming paradigm of Apache Hadoop MapReduce. | 7M |

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| 8. | a) | Discuss the storage models in cloud Storage. | 7M |
| | b) | Explain the concept of "Storage as a Service" using Amazon S3 as an example. | 7M |

UNIT-V

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| 9. | a) | List and describe the three main goals of resource management in a cloud environment. | 7M |
| | b) | Explain with any one Scheduling Algorithms for Computing Clouds. | 7M |

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| 10. | a) | Discuss the Applications of Control Theory to Task Scheduling on a Cloud. | 7M |
| | b) | What is "Resource Bundling" in the context of cloud scheduling? Why is it necessary. | 7M |