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**PRESIDENCY UNIVERSITY**

**Bengaluru**

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| **End - Term Examinations – MAY 2025** |
| **Date:** 22-05-2025 **Time:** 09:30 am – 12:30 pm |

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| **School:** SOCSE | **Program:** B. Tech-CBC/CBD/CIT/COM/CSD/CSE/CSG | |
| **Course Code :** CSE3343 | **Course Name:** Cloud  Computing | |
| **Semester**: VI | **Max Marks**:100 | **Weightage**: 50% |

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| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** |
| **Marks** | **24** | **24** | **26** | **26** | **-** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

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| **Answer ALL the Questions. Each question carries 2marks. 10Q x 2M=20M** | | | | |
| **1.** | Name the four primary stakeholders in cloud computing as defined by NIST. | **2 Marks** | **L1** | **CO1** |
| **2.** | How did utility computing influence modern cloud services? | **2 Marks** | **L1** | **CO1** |
| **3.** | What is the role of a hypervisor at the OS level? | **2 Marks** | **L1** | **CO2** |
| **4.** | List any two advantages of using virtualization in cloud computing? | **2 Marks** | **L1** | **CO2** |
| **5.** | How does automated scaling benefit cloud infrastructure? | **2 Marks** | **L1** | **CO3** |
| **6.** | Define a Service Level Agreement (SLA) in cloud computing. | **2 Marks** | **L1** | **CO3** |
| **7.** | Why is a virtual private network (VPN) used in logical network perimeter design? | **2 Marks** | **L1** | **CO3** |
| **8.** | How does Zero Trust differ from traditional perimeter-based security? | **2 Marks** | **L1** | **CO4** |
| **9.** | What is single sign-on (SSO)? | **2 Marks** | **L1** | **CO4** |
| **10.** | Mention two techniques to secure remote access in cloud environments. | **2 Marks** | **L1** | **CO4** |

**Part B**

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

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| 11. | a. | Differentiate between Public, Private, Hybrid, and Community clouds. Discuss their features, advantages, and scenarios where each type is best suited. | 10 Marks | L2 | CO1 |
| Or | | | | | |
| 12. | **a.** | Describe Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) with suitable examples. Mention their advantages and use cases**.** | **10 Marks** | **L2** | **CO1** |

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| 13. | a. | You are the HR manager at a mid-sized company that uses Zoho People for employee management. Each month, you need to ensure that the payroll is calculated accurately, including salary, deductions, overtime, and bonuses. How can you configure Zoho application to calculate employee payroll, including handling complex salary structures, tax deductions, overtime, and bonuses? Explain the steps you would take to ensure accurate payroll processing. | 10 Marks | L3 | CO1 |
| Or | | | | | |
| 14. | **a.** | You are overseeing a team of developers and designers who are working on the launch of a new product. The project has a strict deadline, and it's essential to ensure that all tasks are completed on time without compromising on quality. Use Zoho Creator to create a cloud application to manage and track this project. Provide the necessary steps to build the input form for task management. | **10 Marks** | **L3** | **CO1** |

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| 15. | a. | Describe the taxonomy of virtualization techniques. Compare and contrast the different types of virtualization techniques with respect to their benefits and challenges. | 10 Marks | L2 | CO2 |
| Or | | | | | |
| 16. | **a.** | Describe the role of hypervisors in virtualization and differentiate between Type 1 and Type 2 hypervisors. | **10 Marks** | **L2** | **CO2** |

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| 17. | a. | You are tasked with setting up a virtual machine on your system for ethical hacking purposes. You decide to use VirtualBox and install Kali Linux on the virtual machine.  Describe the steps you would take to set up a virtual machine using VirtualBox and install Kali Linux on it, ensuring that the environment is ready for penetration testing activities. | 10 Marks | L3 | CO2 |
| Or | | | | | |
| 18. | **a.** | A development team wants to use Ubuntu as their main operating system for coding and testing software applications. They require an environment with all the necessary development tools, libraries, and dependencies. Walk through the process of installing Ubuntu and configuring it for development purposes. Include installing programming languages (like Python, Java, or Node.js), code editors, and version control tools | **10 Marks** | **L3** | **CO2** |

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| 19. | a. | List and explain the key components involved in creating a logical network perimeter. How do each of these components contribute to securing a network? | 10 Marks | L2 | CO3 |
| Or | | | | | |
| 20. | **a.** | Explain the concept of a Cloud Usage Monitor. What role does it play in managing cloud resources and optimizing cloud environments? | **10 Marks** | **L2** | **CO3** |

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| 21. | a. | You are tasked with designing a cloud infrastructure to support an e-commerce platform with users across North America and Europe. Using Cloud Analyst, explain the step-by-step procedure to configure user bases and data centers in order to ensure low response time and high availability of services. | 10 Marks | L3 | CO3 |
| Or | | | | | |
| 22. | **a.** | Your organization is planning to migrate services to the cloud. Using Cloud Analyst, describe the step-by-step process to simulate the deployment of two data centers and three user bases. Based on the simulation results, how would you estimate the operational cost, and what configuration changes could you make to reduce the overall cost? | **10 Marks** | **L3** | **CO3** |

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| 23. | a. | Describe the importance of identity management in cloud environments. How does it ensure secure access and user authentication? | 10 Marks | L2 | CO4 |
| Or | | | | | |
| 24. | **a.** | Explain Privileged Access Management (PAM) in cloud security. How does PAM help in mitigating insider threats and enforcing security policies? | **10 Marks** | **L2** | **CO4** |

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| 25. | a. | You are working as a data engineer for a company that collects massive logs from their web application. These logs need to be analyzed for user behavior and error detection. Using Hadoop, describe the step-by-step process of how you would collect, store, and analyze these logs using MapReduce. | 10 Marks | L3 | CO4 |
| Or | | | | | |
| 26. | **a.** | Your retail company handles terabytes of sales data daily from multiple branches. Management wants to analyze customer buying patterns and product trends in real-time to improve decision-making and marketing strategies. Explain the step-by-step process to design a Hadoop-based solution for this scenario. Mention the Hadoop components you would use, and describe how the data would be collected, stored, processed, and analyzed to generate useful insights. | **10 Marks** | **L3** | **CO4** |