Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 90436

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2025.

Fifth/Sixth/Seventh/Eighth Semester

Computer Science and Engineering

CCS 335 – CLOUD COMPUTING

(Common to Computer Science and Design/Computer Science and Engineering (Artificial Intelligence and Machine Learning)/Computer Science and Engineering (Cyber Security)/Computer and Communication Engineering/Electrical and Electronics Engineering/Electronics and Communication Engineering/Artificial Intelligence and Data Science/Computer Science and Business Systems/Information Technology)

(Regulations 2021)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Define cloud computing and its main characteristics.

2. List the different types of cloud deployment models.

3. What is virtualization in cloud computing?

4. State the role of a hypervisor in virtualization.

5. Differentiate between full virtualization and para-virtualization.

6. What is Docker and why is it used in virtualization?

7. Name two popular cloud service providers and their platforms.

8. What is OpenStack used for in cloud computing?

9. What is guest hopping in virtualization security?

10. State the purpose of Identity and Access Management (IAM) in cloud security.

PART B — (5 × 13 = 65 marks)

11. (a) Explain the NIST Cloud Computing Reference Architecture and discuss how it contributes to the standardization of cloud services.

Or

(b) Analyze the design challenges in compute and storage cloud infrastructure and propose potential solutions.

12. (a) Illustrate the taxonomy of virtual machines and discuss the implementation levels of virtualization with examples.

Or

(b) Compare hardware virtualization with CPU, memory, and I/O virtualization, providing real-world applications for each type.

13. (a) Describe the differences between network virtualization, storage virtualization, and explain their advantages in cloud environments.

Or

(b) Explain the components of Docker, such as Docker images and repositories, demonstrate their role in containerized application deployment.

14. (a) Compare the cloud software environments : Eucalyptus, OpenStack, and Amazon AWS, focusing on their unique features and capabilities.

Or

(b) Discuss the role of Google App Engine in cloud deployment and explain the steps to deploy a sample web application on this platform.

15. (a) Evaluate the security challenges associated with VM migration and propose best practices to mitigate hyper jacking attacks.

Or

(b) Discuss the architecture and challenges of Identity and Access Management (IAM) in cloud environments, with an example of its practical application.

PART C — (1 × 15 = 15 marks)

16. (a) Design a secure, multi-tenant cloud architecture addressing data isolation and privacy. Outline key security measures and evaluate their pros and cons.

Or

(b) Propose a cloud migration strategy for a large enterprise, covering virtualization, containerization, and security. Discuss how to handle challenges like data loss, downtime and compliance.

———————