

**D127872(022)**

**B. Tech. (Hon's) (Eighth Semester) Examination,  
April-May 2025**

**(Data Science Branch)**

**CLOUD COMPUTING**

*Time Allowed : Three hours*

*Maximum Marks : 100*

*Minimum Pass Marks : 35*

*Note : Attempt all questions. Part (a) of each question is compulsory, each of 4 marks. Attempt any two parts from (b), (c) and (d) each of 8 marks.*

**Unit-I**

1. (a) Define cloud computing and explain its key characteristics.

4



- (b) Differentiate between IaaS, PaaS and SaaS with suitable examples. 8
- (c) Apply the concept of deployment models to suggest the most suitable model for a startup handling sensitive financial data. Justify your choice. 8
- (d) Describe the applications of cloud computing in artificial intelligence and data science. 8

## Unit-II

2. (a) What is virtualization? List any two types of virtualization with examples. 4
- (b) Compare and contrast Type-1 and Type-2 hypervisors in terms of performance, use cases and architecture. 8
- (c) Analyze the role of hypervisors in cloud virtualization. Compare Type-1 and Type-2 hypervisors, highlighting their advantages, disadvantages and use cases. 8
- (d) Discuss virtual machine provisioning and migration. How are resources allocated and scheduled in virtual environments? 8



**Unit-III**

3. (a) Define cloud storage and mention two examples of cloud storage services. 4
- (b) Describe the architecture of a distributed file system and explain its role in cloud storage. 8
- (c) Illustrate the concept of Software-Defined Networking (SDN) and its significance in cloud environments. 8
- (d) Analyze the structure and functions of content delivery networks (CDNs) with examples. 8

**Unit-IV**

4. (a) Define cloud security. Mention any two common cloud vulnerabilities. 4
- (b) Illustrate roles of threats and vulnerabilities in cloud computing. 8
- (c) Analyze the importance of regulatory compliance in cloud computing with reference to GDPR or HIPAA. 8
- (d) Discuss a case study on a cloud security breach and



explain the prevention measures that could have been taken. 8

### Unit-V

5. (a) What is serverless computing? Give one advantage and one limitation. 4
- (b) Compare AWS, Google Cloud Platform and Microsoft Azure based on service offerings. 8
- (c) Explain the process of containerizing a monolithic application using Docker and deploying it using Kubernetes. 8
- (d) Design a cloud architecture for a real-time machine learning model deployed on Microsoft Azure. Incorporate serverless components, data pipelines, and monitoring tools. 8

