6. (a) What is Security-as-a-Service ? 5

(b) Explain the architecture and working of HDFS and compare it with GFS in terms of scalability, fault tolerance and data handling. 10

7. (a) Explain the concept of organizational scenarios of cloud computing.

(b) Explain how mashups integrate multiple services to create user-centric applications. Discuss advantages and limitations. 10

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Total Pages : 04

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May 2026

B. Tech. (Sixth Semester)

Cloud Computing (PEC-RAI-604-21)

Time : 3 Hours] *[Maximum Marks : 75*

Note : It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other.

Part A

1. (a) What is multi-tenancy in cloud computing ?

(b) What is utility computing ?

(c) Why is REST considered lightweight ?

(d) Differentiate between Type-1 and Type-2 hypervisors.

(e) What is the main advantage of NoSQL databases over relational databases ?

(f) What is the role of the "Map" and "Reduce" function ?

(g) What is the role of Cloud Security Alliance (CSA) ?

(h) What is resource optimization and how it is done ?

(i) What is a mashup in web services ?

(j) State some benefits of cloud computing for startups.

Part B

2. (a) Define cloud computing and identify its core features. Which are the technologies on which cloud computing relies ? **10**

(b) What is Platform as a Service ? Compare Google App Engine and Microsoft Azure as PaaS platforms. **5**

3. (a) What is virtualization ? What are its benefits ? List and discuss various types of virtualizations ? **10**

(b) What is AJAX ? Explain its basic working. **5**

4. (a) Discuss real-world applications of MapReduce in cloud computing and analyze its advantages and drawbacks. **10**

(b) Explain the limitations of relational databases in handling large-scale data. **5**

5. (a) Explain cloud security architecture including identity management and access control mechanisms. **5**

(b) Discuss Governance, Risk and Compliance (GRC), Cloud Security Alliance (CSA) and auditing mechanisms in cloud environments. **10**