2124
M.E. Computer Science and Engineering (Cyber Security)
First Semester
Core- III CSN-8103:Cloud Computing and Big Data

Time allowed: 3 Hours

Max. Marks: 50

NOTE: *Attempt* *five* *questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.*

x-x-x

1: Attempt the following:-

(i) Define cloud computing and list its essential characteristics.

(ii) Explain how cloud delivery models are used in real-world scenarios?

(iii) Compare privacy risks and compliance risks in cloud computing.

(iv) Assess the effectiveness of cloud-based data storage for modern businesses.

(v) Propose a simple architecture for a secure cloud system for a small business.   (5x2)

UNIT - I

2:

a) Discuss how architectural influences, such as scalability and resource pooling, have contributed to the growth of cloud computing. Provide examples to support your answer.

b) Critically analyze the impact of virtualization and distributed systems on the development of cloud computing technology.   (2x5)

3:

a) For an organization migrating to the cloud, evaluate the suitability of public and private deployment models based on security, cost, and scalability.

b) Compare and contrast hybrid and community cloud models in the context of a government agency handling sensitive citizen data.   (2x5)

4:

a) Evaluate the potential threats to data integrity and access control in a multi-tenant cloud environment.

b) Propose a framework for mitigating compliance risks while ensuring infrastructure security in cloud-based systems.   (2x5)

P.T.O.

UNIT - II

5:

a) Analyze the challenges of implementing virtualization security in a cloud environment with high user demand. Provide examples to illustrate these challenges.

b) Evaluate VM-specific security techniques, such as hypervisor security and network isolation, and their effectiveness in mitigating cloud vulnerabilities.

(2x5)

6:

a) Critically analyze the role of identity management systems in enforcing access control in cloud security architecture. Discuss potential risks if these systems fail.

b) Evaluate how autonomic security mechanisms can address evolving threats in a cloud environment. Provide a real-world example.

(2x5)

7:

a) Design a cloud-based backup system for an organization with sensitive financial data. Include considerations for encryption, redundancy, and recovery time.

b) Propose a collaborative cloud solution for an educational institution, incorporating social media tools and streaming platforms. Justify your design choices.

(2x5)

x-x-x