6E7106

Roll No. 23EJCAD03

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B.Tech. VI-Sem. (Main/Back) Examination, April/May - 2026
Artificial Intelligence and Data Science
6AID4-06 Cloud Computing
CS, IT, AID, CAI, CCS, CIT, CSD, CSR

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates:

Attempt all Ten questions from Part A, Five questions out of seven questions from Part B and Three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

PART - A

(Answer should be given up to 25 words only)

All questions are compulsory. **(10×2=20)**

1. List any two enabling technologies of cloud computing.
2. What are the key characteristics of cloud computing?
3. Name the different service models in cloud computing.
4. What is MapReduce, and how is it used in cloud computing?
5. What is CPU virtualization?
6. Name any two hypervisors used in virtualization.
7. List any two security challenges in cloud computing.
8. What is a Service Level Agreement (SLA) in cloud computing?
9. What is Microsoft Azure, and what is its role in cloud services?
10. Name any two major cloud platforms used in industry.

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PART - B

(Analytical/Problem solving questions)

Attempt any Five questions. **(5×4=20)**

1. Explain the key characteristics and components of cloud computing. Discuss the enabling technologies that support cloud computing.
2. Discuss the challenges and risks involved in migrating to cloud computing. What approaches can be adopted to ensure a smooth migration?
3. Explain the service models in cloud computing. Explain the architectural design of compute and storage clouds.
4. Describe different types of virtualization including CPU, memory, and I/O virtualization. Also explain virtual cluster and resource management in data centers.
5. Discuss data security in cloud computing. Explain the roles of business continuity, disaster recovery, risk mitigation, SLA (Service Level Agreement), and trust management.
6. Define virtualization and explain its key benefits. Discuss different implementation levels of virtualization.
7. Discuss Aneka as a cloud application platform. How does it support the integration of private and public clouds?

PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any Three questions. **(3×10=30)**

1. Discuss the challenges, risks, and approaches for migration to cloud computing. Also explain ethical issues, business impact, and future trends of cloud computing, including the concept of ubiquitous cloud and its relationship with IoT.
2. Explain the Cloud Reference Model in detail. Discuss different layers, types of clouds, and service models. Also describe the design of data centers and interconnection networks along with the architectural design of compute and storage clouds.
3. Explain the virtualization and explain its importance. Discuss different implementation levels, structures, tools, and mechanisms of virtualization. Also explain the working of hypervisors such as VMware, KVM, and Xen.
4. Evaluate the concept of cloud information security fundamentals in detail. Discuss cloud security services, design principles, and policy implementation. Also analyze major cloud computing security challenges and the architecture used to address them.
5. Explain the architecture, design, and key features of major cloud platforms such as Amazon Web Services (AWS). Google App Engine. And Microsoft Azure. Compare their roles in providing scalable cloud solutions.