Dr. A.P.J. Abdul Kalam Technical University (AKTU) · B.Tech Theory Examination

Cloud Computing

KML051 · Feb 2024

Time: 3 Hours **Max. Marks: 100**

Attempt all Sections.
If require any missing data; then choose suitably.

SECTION A

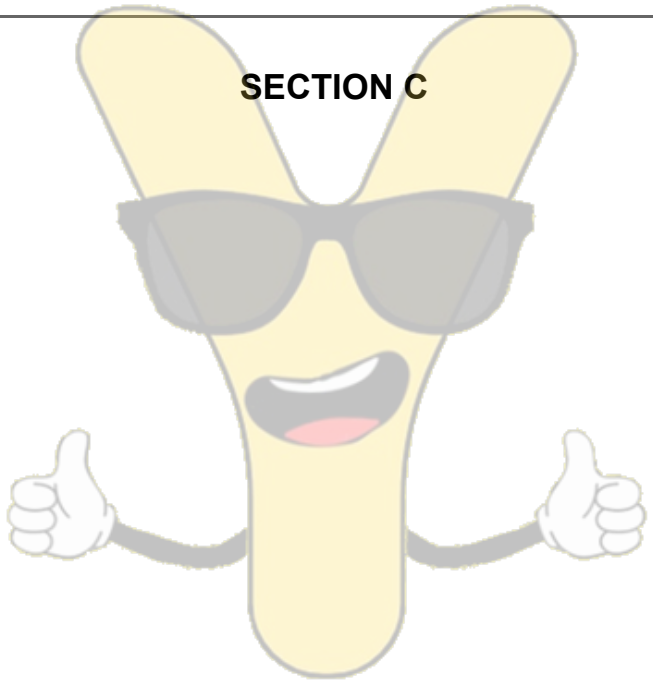
1(a)	Define cloud computing and provide a brief overview of its key characteristics.	2	U1
1(b)	Explain does elasticity contribute to cost optimization in cloud environments.	2	U1
1(c)	Explain the significance of service-oriented architecture in cloud computing.	2	U2
1(d)	Describe REST (Representational State Transfer) in the context of web services.	2	U2
1(e)	Illustrate the role of hypervisor in virtualization.	2	U3
1(f)	Discuss the advantages of using cloud storage over traditional on-premises storage solutions.	2	U3
1(g)	Explain autoscaling in cloud services.	2	U4
1(h)	Differentiate between monolithic and microservices.	2	U4
1(i)	Define OpenStack and explain its significance in cloud computing.	2	U5
1(j)	Explain the Google App Engine.	2	U5

SECTION B

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2(a)	Discuss the underlying principles of Parallel Computing. How does it contribute to the performance of cloud applications?	10	U1
2(b)	Explain the virtualization of CPU in cloud computing. How does it enable multiple virtual machines to run on a single physical processor?	10	U2
2(c)	Discuss the NIST Cloud Computing Reference Architecture. What are its key components?	10	U3
2(d)	Discuss the importance of Identity and Access Management (IAM) in cloud security. How does IAM help manage user permissions and access control?	10	U4
2(e)	What is MapReduce, and how does it contribute to the processing of big data in Hadoop?	10	U5

SECTION C



3(a)	Explain the concept of on-demand provisioning. How does it enhance the scalability of cloud resources?	10	U1
3(b)	Explain the importance of Distributed Computing in the context of cloud systems. Also list the essential characteristics of cloud computing as defined by NIST.	10	U1
4(a)	Discuss the key virtualization structures, such as full virtualization and paravirtualization. How do they impact system performance and efficiency?	10	U2
4(b)	Explain how virtualization supports disaster recovery in cloud computing. What role does it play in ensuring business continuity?	10	U2
5(a)	Differentiate between public, private, and hybrid clouds. In what scenarios would an organization choose one over the other?	10	U3
5(b)	Explain the features and functionalities of Amazon S3 (Simple Storage Service). How does it support scalable and secure storage in the cloud?	10	U3
6(a)	Explain the role of security standards in cloud computing. What are some widely adopted security standards in the industry?	10	U4
6(b)	Discuss the methods of Resource Provisioning in cloud environments. How do on-demand and reserved instances differ in provisioning?	10	U4
7(a)	Define Hadoop and explain its role in distributed computing. How does it handle large-scale data processing?	10	U5
7(b)	Describe Virtual Box and its use in virtualization. How does it facilitate the deployment of virtual machines?	10	U5

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