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Subject with Code: Cloud Computing for AI (23CS0909) **Branch:**B.Tech–CSE(CSM & CAI)

Year&Sem: III-B.Tech&II-Sem **Regulation:**R23

QUESTION BANK

UNIT-I
INTRODUCTION TO CLOUD COMPUTING AND AI INTEGRATION

1	a)	Define cloud computing.	[L1][CO1]	2M
	b)	What is the role of cloud computing?	[L1][CO1]	2M
	c)	List key characteristics of cloud computing	[L1][CO1]	2M
	d)	What are the deployment models in cloud computing?	[L1][CO1]	2M
	e)	List out two benefits of integrating AI with cloud computing.	[L1][CO1]	2M
	f)	List two use cases of AI in cloud environments.	[L1][CO1]	2M
	g)	What is the differentiate between AWS and Azure	[L1][CO1]	2M
	h)	What is GCP?	[L1][CO1]	2M
2		Explain the basics of cloud computing	[L2][CO1]	10M
3		Explain the service models of cloud computing (IaaS, PaaS, SaaS) with suitable examples and use cases.	[L2][CO1]	10M
4		Differentiate between IaaS, PaaS, SaaS in cloud computing	[L4][CO1]	10M
5		Discuss the various deployment models in cloud computing and their relevance to AI integration.	[L2][CO1]	10M
6	a)	Describe the advantages and disadvantages of public and private cloud.	[L2][CO1]	5M
	b)	Distinguish between Community cloud and hybrid cloud	[L5][CO1]	5M
7	a)	Illustrate the major benefits and challenges of AI?	[L3][CO1]	5M
	b)	Analyze the convergence of AI and cloud computing.	[L4][CO1]	5M
8		Develop the use cases of AI in cloud platforms with examples from NLP, computer vision, and analytics.	[L6][CO1]	10M
9		Compare the AI capabilities of major cloud providers: AWS, Azure, and GCP.	[L5][CO2]	10M
10		Explain the benefits of AWS over cloud service provider.	[L2][CO2]	10M

UNIT-II
STORAGE, COMPUTING, AND DATA PROCESSING IN THE CLOUD

1	a)	What are the key features of cloud storage services	[L1][CO2]	2M
	b)	Define virtualization	[L1][CO2]	2M
	c)	Define Elastic computing	[L1][CO2]	2M
	d)	What are the difference between Hadoop and Spark	[L1][CO2]	2M
	e)	What is the purpose of data ingestion pipelines in cloud environments?	[L1][CO2]	2M
	f)	What is a data lake	[L1][CO2]	2M
	g)	Mention two cost optimization strategies for cloud storage.	[L1][CO2]	2M
	h)	What are the computing Resources and services in AI	[L1][CO2]	2M
2		Explain various cloud storage services (S3, Blob, BigQuery) and their use in AI data workflows.	[L2][CO2]	10M
3		Discuss virtualization and elastic computing in the cloud. How do they support scalable AI applications?	[L2][CO2]	10M
4		Explain the different types of virtualization.	[L2][CO2]	10M
5		Discuss the architecture and benefits of distributed computing in the cloud using Hadoop and Spark.	[L2][CO2]	10M
6	a)	Compare Hadoop and Spark for distributed computing in cloud environments.	[L5][CO2]	5M
	b)	Explain the features of Spark in distributed computing	[L2][CO2]	5M
7		Describe the architecture and components of a cloud-based data ingestion.	[L2][CO2]	10M
8		Explain about processing pipeline in cloud	[L2][CO2]	10M
9		Analyze the differences between data lakes and data warehouses. How are they used in cloud-based AI systems?	[L4][CO2]	10M
10		Discuss cost optimization techniques for cloud storage and compute resources. Provide examples from major cloud providers.	[L2][CO2]	10M

UNIT-III
CLOUD-BASED MACHINE LEARNING AND DEEP LEARNING

1	a)	What is AWS SageMaker	[L1][CO3]	2M
	b)	How is AWS SageMaker useful for ML workflows?	[L1][CO3]	2M
	c)	Mention two features of Azure ML that support cloud-based AI development.	[L1][CO3]	2M
	d)	What is the differentiate between training and deploying ML models in the cloud	[L1][CO3]	2M
	e)	Define AutoML	[L1][CO3]	2M
	f)	What is experiment tracking in ML	[L1][CO4]	2M
	g)	How does GCP Vertex AI simplify ML model deployment?	[L1][CO4]	2M
	h)	What is the role of Jupyter/Colab notebooks in cloud ML workflows?	[L1][CO4]	2M
2		Discuss the ML services offered by AWS, Azure.	[L2][CO3]	10M
3		Illustrate about GCP vertex AI with usecases.	[L3][CO3]	10M
4		Explain the process of training and deploying ML models in the cloud with suitable examples.	[L2][CO3]	10M
5		Describe AutoML workflows in cloud platforms. How do they differ from custom ML model development?	[L2][CO3]	10M
6		Analyze the importance of GPUs and TPUs in accelerating deep learning tasks in cloud environments.	[L4][CO4]	10M
7		Explain experiment tracking in cloud ML workflows. Why are they critical for reproducibility?	[L2][CO4]	10M
8		Explain model evaluation in cloud ML workflows.	[L2][CO4]	10M
9	a)	Evaluate the benefits and challenges of integrating jupyter with cloud storage for AI development	[L5][CO4]	5M
	b)	Distinguish between Jupyter and Colab	[L5][CO4]	5M
10		Discuss the integration of notebooks (Jupyter, Colab) with cloud storage and their role in collaborative ML development.	[L2][CO4]	10M

UNIT-IV
ADVANCED CLOUD CONCEPTS FOR AI APPLICATIONS

1	a)	What is Docker	[L1][CO5]	2M
	b)	how isDocker used in AI applications?	[L1][CO5]	2M
	c)	Define Kubernetes	[L1][CO5]	2M
	d)	What is serverless computing?	[L1][CO5]	2M
	e)	What are the importance of CI/CD pipelines in deploying AI models.	[L1][CO5]	2M
	f)	What is auto-scaling in cloud environments?	[L1][CO5]	2M
	g)	What are benefits of load balancers for AI applications.	[L1][CO5]	2M
	h)	List two logging tools commonly used in cloud AI environments.	[L1][CO5]	2M
2		Discuss the role of containers and Docker in building portable AI applications.	[L2][CO5]	10M
3		Explain Kubernetes architecture with neat diagram	[L2][CO5]	10M
4	a)	Explain about Cloud-native AI architecture	[L2][CO5]	5M
	b)	Evaluate benefits and challenges of cloud-native AI	[L5][CO5]	5M
5		Distinguish between AWS Lambda, Azure Functions .	[L4][CO5]	10M
6		Analyze the advantages and limitations of AWS Lambda in serverless computing for AI applications	[L4][CO5]	10M
7		Analyze the advantages and limitations of Azure Functions inserverless computing for AI applications	[L4][CO5]	10M
8		Describe the steps involved in setting up a CI/CD pipeline for AI models in the cloud.	[L2][CO5]	10M
9	a)	Describe about load balancers in AI applications	[L2][CO5]	5M
	b)	Illustrate auto-scaling in AI applications.	[L3][CO5]	5M
10		Explain monitoring and logging strategies for AI workflows in the cloud. Provide examples of tools	[L2][CO5]	10M

UNIT-V
SECURITY, ETHICS, AND CASE STUDIES IN CLOUD AI

1	a)	Define security	[L1][CO6]	2M
	b)	What is the role of IAM in preventing unauthorized access?	[L1][CO6]	2M
	c)	What is Identity and Access Management (IAM) in cloud computing?	[L1][CO6]	2M
	d)	What is cost management in cloud AI services?	[L1][CO6]	2M
	e)	List two ethical issues commonly faced in cloud AI applications	[L1][CO6]	2M
	f)	List two key aspects of AI in healthcare cloud solutions.	[L1][CO6]	2M
2		Discuss the major security and privacy challenges in cloud-based AI systems with examples.	[L2][CO6]	10M
3		Explain Identity and Access Management (IAM) in detail. How does it enhance cloud AI security?	[L2][CO6]	10M
4		How it differs Identity and Access Management in security	[L2][CO6]	10M
5		Analyze the ethical issues in cloud AI	[L4][CO6]	10M
6	a)	Explain the benefits of cost management	[L2][CO6]	5M
	b)	Explain the challenges of cost management	[L2][CO6]	5M
7		Describe cost management and billing strategies for AI services in the cloud.	[L2][CO6]	10M
8		Explain how AI is applied in healthcare cloud solutions. Discuss benefits and challenges.	[L2][CO6]	10M
9		Discuss real-time analytics in financial cloud services. How does cloud AI improve decision-making?	[L2][CO6]	10M

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