

Cloud Computing for Data Science (315327)

MSBTE Diploma · K-Scheme · AI & Machine Learning (AN) Sem 5 · Important Questions

Based on MSBTE papers W-2025 and S-2026 available on msbte.ac.in (only two K-scheme papers of this course exist so far) and the K-scheme syllabus (unit marks: I-12, II-14, III-14, IV-16, V-14). Practice guidance only — not a prediction of the exam.

Probability: High = asked in both papers · Medium = asked two or more times, but in one paper · Low = asked once · Low (not yet asked) = syllabus topic not asked so far, still worth preparing. With only two papers, treat these labels as a rough guide.

Most repeated topics (all units)

#	Topic	Unit	Times asked	Marks	Asked in
1	Cloud service models — SaaS / PaaS / IaaS (explain in detail, features, examples)	I	5	2, 4 M	S-26, W-25
2	Types of virtualization (server, network, storage, desktop, application, data) — incl. network and data virtualization	II	3	4, 6 M	S-26, W-25
3	Deployment models — public / private / hybrid / community (compare, community cloud)	II	3	2, 4 M	S-26, W-25
4	Amazon SageMaker — components, characteristics, key features, advantages	IV	3	2, 4, 6 M	S-26, W-25
5	Azure Machine Learning Studio — features, functionality, workspace and compute setup	IV	3	2, 6 M	S-26, W-25
6	Cloud computing architecture (front end, back end)	I	2	4 M	S-26, W-25
7	Characteristics of cloud computing	I	2	2 M	S-26, W-25
8	Virtualization — definition, need, applications	II	2	4 M	S-26, W-25

Unit I — Introduction to Cloud Computing (12 M)

Question / topic (actual wording asked)	Marks	Asked in	Probability
Cloud service models — SaaS / PaaS / IaaS (explain in detail, features, examples) W-25 Q1c: List two features of platform as a service (PaaS). W-25 Q3a: Explain platform as a service in detail. W-25 Q4a: Explain software as a service in detail. S-26 Q1c: Enlist any four examples of SaaS. S-26 Q3a: Explain Infrastructure as a service in detail.	2, 4 M	W-25 (2 M), W-25 (4 M), W-25 (4 M), S-26 (2 M), S-26 (4 M)	High
Cloud computing architecture (front end, back end) W-25 Q2a: Explain cloud computing architecture. S-26 Q2a: Describe the cloud computing architecture.	4 M	W-25 (4 M), S-26 (4 M)	High
Characteristics of cloud computing W-25 Q1b: List any four characteristics of cloud computing.	2 M	W-25 (2 M), S-26 (2 M)	High

S-26 Q1b: Enlist any four computing characteristics of cloud computing.			
Definition of cloud computing / cloud W-25 Q1a: Define: i) Cloud Computing ii) Cloud.	2 M	W-25 (2 M)	Low
Grid computing / utility computing / evolution from mainframes to cloud S-26 Q1a: Define Grid Computing.	2 M	S-26 (2 M)	Low
Service Oriented Architecture — roles (service provider, consumer, registry) S-26 Q4a: Explain following roles of SOA: i) Service Provider ii) Service Consumer.	4 M	S-26 (4 M)	Low
Web services; continuous delivery using PaaS	2 / 4 / 6 M	—	Low (not yet asked)

Unit II — Virtualization and Cloud Computing (14 M)

Question / topic (actual wording asked)	Marks	Asked in	Probability
Types of virtualization (server, network, storage, desktop, application, data) — incl. network and data virtualization W-25 Q5a: Explain types of virtualization. S-26 Q3b: Describe the architecture of Network virtualization. S-26 Q5a: Describe Data virtualization in detail. Explain how data virtualization is used in Banking and Healthcare sectors.	4, 6 M	W-25 (6 M), S-26 (4 M), S-26 (6 M)	High
Deployment models — public / private / hybrid / community (compare, community cloud) W-25 Q1d: State the difference between hybrid and public cloud deployment model (any two points). W-25 Q3c: Explain community cloud storage with advantages and disadvantages. S-26 Q4b: Compare Public, Private and Hybrid cloud.	2, 4 M	W-25 (2 M), W-25 (4 M), S-26 (4 M)	High
Virtualization — definition, need, applications W-25 Q2b: What is virtualization and give application of virtualization. S-26 Q2b: Define virtualization and explain the need of virtualization.	4 M	W-25 (4 M), S-26 (4 M)	High
Advantages of cloud computing in machine learning / role of cloud in data science W-25 Q3b: Write advantages of cloud computing in Machine Learning (any four points). S-26 Q1d: Write any two advantages of cloud computing in Machine Learning.	2, 4 M	W-25 (4 M), S-26 (2 M)	High
Virtualization vs cloud containerization (VM vs container) W-25 Q4b: Difference between virtualization and cloud containerization.	4 M	W-25 (4 M)	Low

Unit III — Cloud Storage (14 M)

Question / topic (actual wording asked)	Marks	Asked in	Probability
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Block-based cloud storage system W-25 Q4c: Explain Block-Based cloud storage system. S-26 Q4c: Explain Block based system in detail.	4 M	W-25 (4 M), S-26 (4 M)	High
Batch data and streaming data in machine learning W-25 Q2c: Explain batch data streaming in Machine Learning. S-26 Q2c: Explain Batch data and Streaming data in Machine Learning.	4 M	W-25 (4 M), S-26 (4 M)	High
Cloud data warehouse — AWS Redshift architecture, working, configuration steps W-25 Q5b: Describe the architecture and working of AWS Redshift as a cloud data warehouse. S-26 Q5b: Define cloud Datawarehouse. Explain the working of Amazon Redshift. Enlist steps to configure AWS Redshift.	6 M	W-25 (6 M), S-26 (6 M)	High
Types of cloud storage W-25 Q1e: Enlist four types of cloud storage.	2 M	W-25 (2 M)	Low
Cloud storage use cases (backup, archiving, disaster recovery, data processing, content delivery) S-26 Q3c: Explain the following use cases of cloud storage: i) Archiving ii) Content Delivery.	4 M	S-26 (4 M)	Low
Key-value databases — features, limitations S-26 Q1e: State limitations of key-value computing databases.	2 M	S-26 (2 M)	Low
File-based and object-based storage; GCP BigQuery; benefits of cloud storage	2 / 4 / 6 M	—	Low (not yet asked)

Unit IV — Cloud Computing for Data Science (16 M)

Question / topic (actual wording asked)	Marks	Asked in	Probability
Amazon SageMaker — components, characteristics, key features, advantages W-25 Q1g: State two advantages of AWS SageMaker. W-25 Q6a: Explain Amazon SageMaker with its components and characteristics. S-26 Q4d: Explain key features of Amazon SageMaker.	2, 4, 6 M	W-25 (2 M), W-25 (6 M), S-26 (4 M)	High
Azure Machine Learning Studio — features, functionality, workspace and compute setup W-25 Q1f: Enlist any two features of Azure ML studio. W-25 Q5c: Explain Azure Machine Learning studio and Google Cloud AutoML in Machine Learning with functionalities. S-26 Q5c: Explain functionality of Azure Machine Learning Studio. Write steps to create workspace and setup compute resources.	2, 6 M	W-25 (2 M), W-25 (6 M), S-26 (6 M)	High
Machine learning in the cloud — definition, benefits and limitations W-25 Q4d: Give benefits and limitations of machine learning in the cloud. S-26 Q1g: Define cloud Machine Learning.	2, 4 M	W-25 (4 M), S-26 (2 M)	High
Cloud ML service types — AIaaS and GPUaaS (models, use cases, providers)	4, 6 M	S-26 (4 M), S-26 (6 M)	Medium

S-26 Q3d: Explain the services provided by AIaaS (Artificial Intelligence as a Service). S-26 Q6a: Explain w.r.t. GPUaaS: i) types of GPUaaS models ii) use cases iii) any four GPUaaS providers.			
Google Cloud AutoML W-25 Q5c: (second part of the same question) ... and Google Cloud AutoML with functionalities.	6 M	W-25 (6 M)	Low
ML platforms used in data science (overview of ML systems, managed ML platforms) S-26 Q1f: List any two ML platforms used in data science.	2 M	S-26 (2 M)	Low
Jupyter Notebook and its workflow W-25 Q3d: Explain Jupyter Notebook with its workflow.	4 M	W-25 (4 M)	Low

Unit V — Training and Deployment of ML on Cloud (14 M)

Question / topic (actual wording asked)	Marks	Asked in	Probability
Steps to train a machine learning project in the cloud (incl. deep-learning image classification on a cloud GPU) W-25 Q6b: Describe the complete process of training Machine Learning project in the cloud. S-26 Q6c: Write steps to train ML project in the cloud. Explain each step to train a deep learning model for image classification using a cloud-based GPU instance.	6 M	W-25 (6 M), S-26 (6 M)	High
ETL / ELT pipelines (support for ETL/ELT, ETL vs ELT process) W-25 Q2d: Explain supports for ETL or ELT pipelines. S-26 Q6b: Explain in detail ETL and ELT pipeline process.	4, 6 M	W-25 (4 M), S-26 (6 M)	High
Pre-tuned AI services (and monitoring prediction performance) W-25 Q6c: Explain Pre-tuned AI services and Monitor prediction performance with real-world example. S-26 Q4e: Explain key features of pre-Tuned AI Services.	4, 6 M	W-25 (6 M), S-26 (4 M)	High
Factors for selection of a cloud ML platform S-26 Q2d: Enlist factors for selection of Cloud Machine Learning Platform.	4 M	S-26 (4 M)	Low
Scale-up and scale-out training W-25 Q4e: Explain supports for scale-up and scale out training.	4 M	W-25 (4 M)	Low
Support for ML frameworks (TensorFlow, PyTorch, scikit-learn) as a selection factor	2 / 4 / 6 M	—	Low (not yet asked)

Note: Prepared by Ananda Technologies from previous MSBTE question papers (W-2025, S-2026) and the K-scheme syllabus, for practice only. It is **not an official MSBTE document** and does **not** claim that these questions will come in the exam. Study the full syllabus. Free for students — anandatechnologies.in