

Cloud Computing for Data Science (315327)

MSBTE Diploma · K-Scheme · Model Question Paper — Set A

Time: 3 Hours**Max. Marks: 70****Instructions:**

1. All questions are compulsory.
2. Answer each next main question on a new page.
3. Illustrate your answers with neat sketches wherever necessary.
4. Figures to the right indicate full marks.
5. Assume suitable data, if necessary.
6. Mobile phone, pager and any other electronic communication devices are not permissible in the examination hall.

Q.1 Attempt any FIVE of the following:**10**

- a) Define cloud computing. Give any two examples of cloud services.
- b) List any four characteristics of cloud computing.
- c) Define virtualization. List any two types of virtualization.
- d) State any two differences between block storage and object storage.
- e) List any four features of key-value databases.
- f) State any two features of Azure Machine Learning Studio.
- g) List any four components of Amazon SageMaker.

Q.2 Attempt any THREE of the following:**12**

- a) Explain cloud computing architecture with a neat diagram.
- b) Differentiate between batch data and streaming data in machine learning. (Any four points)
- c) Explain the need for virtualization. Write any two applications of virtualization.
- d) Explain how support for ETL / ELT pipelines helps in selecting a cloud machine learning platform.

Q.3 Attempt any THREE of the following:**12**

- a) Explain Software as a Service (SaaS) in detail.
- b) Explain any four advantages of cloud computing for machine learning.
- c) Explain block-based cloud storage system with a neat diagram.
- d) Explain Jupyter Notebook with its workflow.

Q.4 Attempt any THREE of the following:**12**

- a) Explain the roles of service provider, service consumer and service registry in Service Oriented Architecture (SOA) with a neat diagram.

- b) Compare public, private and hybrid cloud. (Any four points)
- c) Explain the working of Amazon Redshift with a neat diagram.
- d) Explain the benefits and limitations of machine learning in the cloud.
- e) Explain scale-up and scale-out training in cloud machine learning with a neat diagram.

Q.5 Attempt any TWO of the following:

12

- a) Explain the types of virtualization with neat diagrams.
- b) Explain Amazon SageMaker with its components and the machine learning workflow it supports.
- c) Describe the steps to train a machine learning project in the cloud with a neat diagram.

Q.6 Attempt any TWO of the following:

12

- a) Explain the following w.r.t. GPU as a Service (GPUaaS): (i) types of GPUaaS models (ii) use cases (iii) any four GPUaaS providers.
- b) Explain pre-tuned AI services with examples. How is the prediction performance of a deployed model monitored?
- c) Explain the following use cases of cloud storage: (i) Backup (ii) Archiving (iii) Disaster recovery (iv) Data processing (v) Content delivery.

Note: This is a **model question paper prepared by Ananda Technologies** only for practice and exam preparation, based on the pattern of previous MSBTE question papers and the K-scheme syllabus. It is **not an official MSBTE paper**, and it does **not** mean that these questions will come in the exam. Answers follow standard textbook points; marks shown are indicative. Free for students — anandatechnologies.in