

Cloud Computing for Data Science (315327)

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

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) Explain 'resource pooling' and 'measured service' characteristics of cloud computing.
- b) Give one example each of IaaS, PaaS and SaaS and state who mainly uses each model.
- c) State any two differences between private cloud and community cloud.
- d) Write any two ways in which cloud computing helps a data scientist.
- e) List any four use cases of cloud storage.
- f) State any four limitations of machine learning in the cloud.
- g) Define pre-tuned AI services. Give two examples.

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

- a) Explain Platform as a Service (PaaS). How does PaaS support continuous delivery?
- b) What is virtualization? Explain any four benefits of virtualization in cloud computing.
- c) Explain key-value databases with their features and an example.
- d) Explain any four key features of Amazon SageMaker.

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

- a) Explain web services (SOAP and REST) as a foundation of cloud computing.
- b) Differentiate between virtual machines and containers (Docker). (Any four points)
- c) A bank wants to detect fraudulent card transactions in real time and also retrain its fraud model every night. Identify the type of data processing needed in each case and explain.

- d) Explain Google Cloud AutoML with its functionalities.

Q.4 Attempt any THREE of the following:

12

- a) Explain the front end and back end of cloud computing architecture with a neat diagram.
- b) Explain hybrid cloud with a neat diagram. Write its advantages and disadvantages.
- c) Explain block-based and file-based storage systems with neat diagrams.
- d) Explain the overview of a machine learning system and the benefits of managed ML platforms.
- e) Explain the ETL pipeline process with an example of loading sales data into a data warehouse.

Q.5 Attempt any TWO of the following:

12

- a) Explain server, storage and application virtualization with neat diagrams.
- b) Describe the architecture and working of Amazon Redshift. Explain how data is loaded into Redshift from Amazon S3.
- c) Explain the components of Azure Machine Learning Studio (Designer, Automated ML, Notebooks, Compute). Write the steps to create a workspace and a compute cluster.

Q.6 Attempt any TWO of the following:

12

- a) Explain AIaaS and GPUaaS as cloud-based machine learning services with examples.
- b) Explain the stages of a cloud ML project — identifying data sources, feature engineering, training and validation, deployment and monitoring — with a neat diagram.
- c) An e-commerce company wants to automatically tag product images and detect negative customer reviews. Suggest suitable pre-tuned AI services and explain how the company should monitor prediction performance after deployment.

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