

Assignment: 1

Part A – Short Answer Questions

1. Define Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL). Give one real-world example of each.
2. Differentiate between AI Services, ML Services, and ML Frameworks in AWS.
3. What is the role of Amazon Rekognition and Amazon Polly in AI applications?
4. List three features of Amazon SageMaker and explain how it simplifies the ML lifecycle.
5. What is the difference between TensorFlow, PyTorch, and Apache MXNet as ML frameworks?

Part B – Descriptive Questions

6. Explain the layered structure of the AWS AI/ML stack with suitable examples.
7. Discuss the different AWS pricing models. Compare Pay-as-you-go and Reserved Instances with examples.
8. What are IAM Users, Roles, and Policies? How do they help in securing cloud resources?
9. Explain the principle of least privilege in IAM. Why is it considered a best practice?
10. Describe how AWS Regions and Availability Zones ensure fault tolerance.

Part C – Case Study / Application-based Questions

11. A company wants to build a fraud detection system using AWS AI/ML services. Which services would you recommend, and why?
12. Suppose you are developing a student performance prediction system. How can Amazon SageMaker help in training and deploying the ML model?
13. Design a small use case where Rekognition and Polly can work together in an application. Explain step by step.
14. Your organization needs to give temporary access to a contractor for uploading files into an S3 bucket. How would you configure IAM roles and policies for this situation?
15. Compare traditional on-premise ML development with Cloud-based ML development (AWS SageMaker) in terms of cost, scalability, and ease of use.