1. Define an operational database.
2. List any two key features of PostgreSQL.
3. What is the primary data model used by MongoDB?
4. Name any two differences between CouchDB and MongoDB.
5. What is HBase primarily used for?
6. Explain the importance of RDBMS in big data applications.
7. Differentiate between MongoDB and CouchDB in terms of data storage structure.
8. Compare PostgreSQL with HBase in terms of scalability.
9. Describe the CAP theorem in the context of operational databases.
10. Explain how CouchDB handles document revisions.
11. Write a basic SQL query to retrieve data from a PostgreSQL table.
12. Design a simple document structure for storing customer orders in MongoDB.
13. Demonstrate how to insert a record in CouchDB using a JSON document.
14. Illustrate a use case where HBase would be preferred over PostgreSQL.
15. Implement a simple table creation and data insertion in PostgreSQL using commands.
16. What is MapReduce?
17. Name the two main functions of MapReduce.
18. List any two features of the MapReduce framework.
19. What is the output of the Map function?
20. Define the term “Reducer” in MapReduce.
21. Explain the working process of the MapReduce framework.
22. Describe how data is split and processed in the Map phase.
23. Discuss the role of the Shuffle and Sort phase.
24. Explain how Map and Reduce functions collaborate to process data.
25. Illustrate with an example how word count is performed using MapReduce.
26. Write a simple MapReduce pseudo-code for counting the number of sales per product.
27. Apply the MapReduce model to calculate average temperature per city from weather data.
28. Demonstrate how MapReduce handles large-scale data processing.
29. Build a custom Map function for filtering log files by error type.
30. Use a MapReduce job to process user activity logs and summarize user sessions.
31. What is Hadoop?
32. List any three components of the Hadoop ecosystem.
33. Define HDFS.
34. Mention any two HDFS commands.
35. What is a NameNode in Hadoop?
36. Explain the architecture of HDFS.
37. Describe the role of the NameNode and DataNode in Hadoop.
38. Discuss how HDFS ensures data reliability.
39. Compare HDFS with a traditional file system.
40. Explain the significance of block size in HDFS.
41. xecute a basic HDFS command to upload a file.
42. Apply HDFS commands to check disk usage in the Hadoop file system.
43. Demonstrate how to copy a file from HDFS to the local file system.
44. Construct a small Hadoop job using HDFS to store and read employee data.
45. Show how to use Hadoop streaming to run a Python script as a MapReduce job.
46. What is NoSQL?
47. List any two characteristics of NoSQL databases.
48. Name the four main types of NoSQL databases.
49. In which year did the term “NoSQL” gain popularity?
50. Define a key-value store.
51. Explain how NoSQL databases differ from traditional RDBMS.
52. Describe the key characteristics that make NoSQL suitable for big data.
53. Compare document-based and column-family NoSQL databases.
54. Explain the reasons behind the rise of NoSQL databases in recent years.
55. Describe a scenario where a graph-based NoSQL database would be more suitable than
56. others.
57. Categorize the following databases: MongoDB, Cassandra, Redis, Neo4j.
58. Choose a suitable NoSQL type for an application storing user profiles and explain your
59. choice.
60. Design a simple key-value data model for a shopping cart using a NoSQL approach.
61. Implement a use case where column-based NoSQL storage is more efficient than row-
62. based storage.
63. Demonstrate how a document-based NoSQL database can be used to store nested data.
64. What is MongoDB?
65. What data format does MongoDB use to store data?
66. Name any two data types used in MongoDB.
67. What is the command to create a database in MongoDB?
68. What is the difference between insert() and save() methods?
69. Explain how MongoDB differs from a traditional RDBMS in terms of schema design.
70. Describe the role of \_id in MongoDB documents.
71. Discuss the use of JavaScript in MongoDB for querying and scripting.
72. Explain how the find() method is used to retrieve documents.
73. Describe how MongoDB handles arrays within documents.
74. Create a MongoDB database and insert a document using the insert() method.
75. Use the update() method to change the price of a product in a collection.
76. Write a query using find() with limit() and sort() to display top 5 students by grade.
77. Apply the aggregate() function to calculate the average salary by department.
78. Use the MongoImport tool to import a JSON file into a MongoDB collection.
79. Demonstrate how to skip the first 3 documents and return the next 5 in a collection.
80. Write a MongoDB query to count documents with a null value in a specific field.
81. Use the remove() method to delete records where the quantity is 0.
82. Show an example of an array field in a MongoDB document and how to query it.
83. Perform a MapReduce operation in MongoDB to group orders by customer.