**Unit 6**

1. What do you mean by active database? What are its uses? Explain appropriate model for implementation of active database.
2. Explain key characteristics of an Active Database. Discuss the advantages of using active databases in contrast to traditional passive databases. Also, provide examples of real-world applications where active databases are beneficial.
3. Define a database trigger and explain its role in enforcing integrity constraints and automating actions in response to database events. Differentiate between row-level and statement-level triggers, and explain when each type of trigger is triggered and executed.
4. What do you mean by a temporal database? Compare and contrast Temporal Databases with traditional databases, highlighting the key differences in data representation and query processing. Explain with an example.
5. Explain the advantages of using Temporal Databases for auditing, compliance, and historical data analysis. Discuss how Temporal Databases support the tracking of data changes over time, ensuring data integrity and consistency. Also, provide examples of real-world applications where Temporal Databases are used, such as financial systems, healthcare, and version control systems.
6. What are the differences among valid time, transaction time, and bitemporal relations?
7. Define spatial data and spatial database. Describe the different types of spatial data, such as points, lines, and polygons. What are the applications of spatial databases? Explain.
8. Explain the difference between vector data model and raster data model. Discuss the advantages and limitations of each spatial data model. Explain the concept of spatial queries and the types of spatial queries that can be performed in spatial databases, such as spatial joins, nearest neighbor queries, and range queries.
9. What are the different types of spatial data mining?
10. Define Multimedia Databases. What are the applications where Multimedia Databases play a crucial role? Explain the characteristics of multimedia data, including size, format, and complexity.
11. Discuss the storage requirements for multimedia data and the techniques used to handle the large volume of data efficiently. Also, describe the challenges of processing multimedia queries, such as similarity search and relevance ranking.
12. How are multimedia sources indexed for content-based retrieval?
13. Define Deductive Databases and their primary purpose in representing and managing data using rules and facts. Also, explain the concept of deductive rules and how they are used to infer new information from existing data. Explain with an example.
14. Define the clausal form of formulas and Horn clauses.
15. What is model-theoretic interpretation and how does it differ from proof theoretic interpretation?

**Unit 7**

1. Define Information Retrieval (IR) and explain its role in managing and retrieving information from large collections of data. Describe the key components of an IR system, such as document collection, query processing, and relevance ranking.
2. What are the two main modes of interaction with an IR system? Describe and provide examples.
3. What is the Boolean model of IR? What are its limitations?
4. What is the vector space model of IR? How does a vector get constructed to represent a document?
5. Define the TF-IDF scheme of determining the weight of a keyword in a document. Why is it necessary to include IDF in the weight of a term?
6. What are probabilistic and semantic models of IR?
7. Define recall and precision in IR systems.
8. How is an F-score defined as a metric of information retrieval? In what way does it account for both precision and recall?
9. What are the different types of queries in an IR system? Describe each with an example.
10. What is stop word removal and stemming? Why are these processes necessary for better information retrieval?
11. What is a thesaurus? How is it beneficial to IR?
12. What is information extraction? What are the different types of information extraction from structured text?
13. Describe the process of constructing the result of a search request using an inverted index.
14. Explain the concept of Web Search Engines and their role in indexing and retrieving information from the World Wide Web. Also, discuss the major components of a Web Search Engine, such as crawling, indexing, and ranking algorithms.
15. What algorithms are popular in ranking or determining the importance of Web pages? Which algorithm was proposed by the founders of Google?
16. What is the basic idea behind the PageRank algorithm?
17. Explain different trends in Information Retrievals.
18. How do question answering systems work?
19. Describe the Datalog language and its role in specifying facts, rules and queries in Deductive (with syntax) Databases. Also, explain the difference between deductive querying and traditional relational querying.