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Question Paper Code	14274
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M.E. / M.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025

First Semester

**M.E. - Computer Science and Engineering
24PCSPC102 - ADVANCED DATABASES**

Regulations - 2024

Duration: 3 Hours

Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

	<i>Marks</i>	<i>K- Level</i>	<i>CO</i>
1. Which of the following parallel database architectures is/are mainly used by distributed database system? (a) Shared Disk (b) Shared Memory (c) Hierarchical (d) Shared Nothing	1	K1	CO1
2. A global transaction in a distributed database is: (a) A transaction whose data resides on a single site (b) A transaction whose data resides on one or more remote sites (c) Always read-only (d) Always local	1	K1	CO1
3. Which system is known for providing a rich active database functionality including rule languages and event-condition-action rules? (a) MySQL (b) Starburst (c) SQLite (d) MongoDB	1	K1	CO2
4. In spatial databases, what is a spatial index commonly used for? (a) To sort data by primary key (b) To speed up spatial queries (c) To compress spatial data (d) To avoid using geometry types	1	K1	CO2
5. What is the primary characteristic of a Native XML Database? (a) It stores XML data in a relational table format. (b) It is based on a container-centric approach for storing XML. (c) It converts XML to JSON before storage. (d) It primarily focuses on displaying web pages.	1	K1	CO3
6. Which of the following is a common query language used with XML databases? (a) SQL (b) XQuery (c) JSON Path (d) MDX	1	K1	CO3
7. Which of the following is a popular embedded database engine used in mobile applications? (a) MySQL (b) Oracle (c) SQLite (d) PostgreSQL	1	K1	CO4
8. What is a primary challenge in mobile database management? (a) Fixed network infrastructure (b) Large screen sizes (c) Limited battery life and processing power (d) Abundant memory	1	K1	CO4
9. The ability of a multimedia database to handle high volumes of data makes it more scalable than what other storage method? (a) Flat files (b) Relational databases (c) NoSQL databases (d) Spreadsheets	1	K1	CO5
10. Which of the following is a common example of a document database? (a) MySQL (b) PostgreSQL (c) MongoDB (d) Oracle	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

11. Recall three tier client-server architecture.	2	K1	CO1
12. Differentiate Local transaction and Global transaction.	2	K2	CO1
13. List the components of Deductive databases.	2	K1	CO2
14. Briefly discuss. Why spatial access methods are needed?	2	K2	CO2
15. Identify the scenario where the XQuery is used.	2	K3	CO3

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| 16. What is meant by well-formed XML document? | 2 | K1 | CO3 |
| 17. List the properties of mobile Database. | 2 | K1 | CO4 |
| 18. Define Handoff. | 2 | K1 | CO4 |
| 19. Outline about multimedia database. | 2 | K2 | CO5 |
| 20. Which DB is best for storing videos? | 2 | K1 | CO5 |
| 21. Mention the various types of textual data. | 2 | K1 | CO6 |
| 22. How to store images in SQL database? | 2 | K1 | CO6 |

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

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| 23. a) Explain with a neat diagram, the centralized and client server architecture with neat diagram. | 11 | K2 | CO1 |
| OR | | | |
| b) What the types are of commit protocol and explain how it is implemented in distributed database systems. | 11 | K2 | CO1 |
| 24. a) Analyze about the syntax and semantics in Starburst, Oracle and DB2 with suitable examples. | 11 | K4 | CO2 |
| OR | | | |
| b) Examine the various Spatial data structures? Explain any two in detail. | 11 | K4 | CO2 |
| 25. a) Identify and explain the role of DTD and XML schema in formation of XML documents. | 11 | K3 | CO3 |
| OR | | | |
| b) Develop a sample XML DTD file and generalize the concepts of elements and their nested structure. | 11 | K3 | CO3 |
| 26. a) Make use of suitable examples to explain about the transaction commit protocol in mobile database system. | 11 | K3 | CO4 |
| OR | | | |
| b) Under what situations the Moflex Transaction Model and Kangaroo Mobile Transaction Model can be applied? Explain. | 11 | K3 | CO4 |
| 27. a) Discuss in detail about the Multidimensional data models and advantages & disadvantages. | 11 | K2 | CO5 |
| OR | | | |
| b) Explain how the video data's are organized in VDBMS. | 11 | K2 | CO5 |
| 28. a) Inspect in detail about the concept of Text/Document Databases and explain with an example. | 11 | K4 | CO6 |
| OR | | | |
| b) Inspect the various image acquisition techniques and storage techniques and give an overview about each with a suitable diagram. | 11 | K4 | CO6 |