

Anekant Education Society's

**Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati**  
(Autonomous)

Department of Computer Science

Class : M.Sc.(Comp.Sci.) – I

Semester : I

Paper Code : COMP4103 (Paper – III)

Title : Database Technologies

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**Question Type : Objective Questions**

- Some of the columns of a relation are at different sites. This is known as .....
- A distributed database is which of the following?
- Which of the following operator is used to reconstruct the original relation from the horizontally fragmented relations?
- Horizontal fragmentation that is based on the horizontal fragment of a parent relation is known as ..... fragmentation.
- Which of the following is a blocking protocol?
- Two objects are ..... if and only if their OIDs are the same.
- Which of the following is associated with Object Identifier (OID) ?
- ..... are the means by which objects communicate.
- The action of converting object identifiers to main memory pointers, and back again.
- In which year, ODMG 2.0 was released?

11. .... is an unordered collections that allow duplicates.  
A) Bag                      B) Set                      C) List                      D) Array
12. .... programming language provides its users with the ability to preserve data across successive executions of a program.  
A) Object oriented                      B) Persistent                      C) Database                      D) Procedural
13. .... is an ordered collections that allow duplicates.  
A) List                      B) Set                      C) Bag                      D) Array
14. A .... document that conforms to a DTD is considered .....
- A) valid, well-formed                      B) well-formed, valid  
C) simple, valid                      D) simple, well-formed
15. .... has no support for namespaces.  
A) DTD                      B) XML schema                      C) Both A and B                      D) None of these
16. XML schemas consist of:  
A) properties and methods                      B) elements and attributes  
C) structure and data                      D) tables and relationships
17. The DTD begins with the word .....
- A) #PCDATA                      B) DOCTYPE                      C) XML                      D) HTTPS
18. Which language is case sensitive?  
A) XML                      B) HTML                      C) both XML and HTML                      D) none of these
19. MAHO stands for .....
- A) Mobile assisted handoff                      B) Machine assisted handoff  
C) Man assisted handoff                      D) None of these
20. What is the condition for handoff?  
A) A mobile moves into different cell while conversation is going on  
B) A mobile moves to different cell while not in use  
C) A mobile is in the same cell and not in use  
D) None of these
21. The time over which a call may be maintained within a cell without a handoff is called.....  
A) peak time                      B) dwell time                      C) call time                      D) None of these
22. Cell dragging problem occurs due to .....
- A) Stationary users                      B) Pedestrian users  
C) High speed mobile                      D) Base stations having same frequency
23. .... transaction model capture the movement and data behaviour of transactions when a mobile host moves from one cell to another.  
A) Kangaroo                      B) Clustered                      C) Simple                      D) none of these
24. Which of the following is the graph-based NoSQL system?  
A) MongoDB                      B) CouchDB                      C) Neo4J                      D) none of these

25. The 'A' in the CAP theorem means.....  
 A) Accuracy            B) Availability            C) Atomicity            D) none of these
26. Which of the following is used to query a collection?  
 A) find            B) findOne            C) both A and B            D) none of these
27. Horizontal partitioning of the documents in the collection is called as .....  
 A) sharding            B) fragmenting            C) splitting            D) none of these
28. .... command display the list of databases.  
 A) show dbs            B) show db            C) show data            D) display dbs
29. After starting the mongo shell, your session will use the .... database by default.  
 A) test            B) primary            C) mongo            D) master
30. When you query a collection, MongoDB returns a .... object which contains the output of the query.  
 A) cursor            B) columns            C) row            D) none of these
31. Which of the following is the most important diagnostic tools for slow queries?  
 A) explain            B) find            C) query            D) none of these
32. .... method is equivalent with Order by clause in SQL.  
 A) order by            B) sort            C) order            D) none of these
33. The .... method limits the number of documents in the result.  
 A) limits            B) limit            C) limitBy            D) limitOf

### **Question Type : One Sentence Answers**

34. State the correctness rules of fragmentation.
35. What is intra-query parallelism?
36. Why 2PC is known as blocking protocol?
37. List the steps in query decomposition.
38. What are transient objects?
39. What are persistent objects?
40. List the different collection subtypes.
41. What is an extent in object database?
42. List the characteristics of object.
43. What is a literal?
44. State the use of DEFINE statement in OQL.
45. Differentiate between eager and lazy swizzling.
46. Differentiate between well formed and valid xml file.
47. What are attributes in xml file?
48. What is namespace in XML?
49. For what purpose XPath is used?
50. What is XQuery?

51. What is a mobile database?
52. What is Kangaroo transaction model?
53. What are the recovery schemes in mobile databases?
54. List the types of NoSQL databases.
55. Write the syntax for inserting a document to a collection.
56. Write the syntax to retrieve documents from a collection.
57. State the two fundamental data structures in a graph database.
58. Assume that there is db.books collection. Write a command in MongoDB to remove the books authored by Brian Johnson.
59. Name the query operator used to search for values in a single key.
60. What is sharding?

### **Question Type : Short Notes**

Write a short note on :

61. Horizontal Fragmentation
62. Derived Horizontal Fragmentation (DHF)
63. Two Phase Commit Protocol (2PC)
64. Query Decomposition
65. Weaknesses of RDBMSs
66. Object Identity
67. Pointer Swizzling
68. DTD
69. XPath
70. Data Mining
71. Data Warehousing
72. Pessimistic Scheme in recovery of Mobile Databases
73. Handoff Management in Mobile Databases
74. CAP theorem
75. Types of NoSQL databases

### **Question Type : Short Answers**

76. Differentiate between 2PC and 3PC.
77. Explain in brief about distributed query processing.
78. Explain in brief about complex objects.
79. Compare between OODM and CDM.
80. What is ROT?
81. Compare between copy and in-place swizzling.
82. What is extent?

83. What are advantages of ORDBMS?
84. Explain about XML Data Model.
85. What is XML Schema?
86. What are advantages of XML?
87. What is XQuery?
88. Explain in brief about MongoDB.
89. What are advantages of MongoDB over RDBMS?

**Question Type : Long Answers**

90. Compare between 2PC and 3PC.
91. What is parallelism in parallel databases.
92. Explain in detail about normalization in query processing.
93. What is ODL?
94. What is OQL?
95. Why pointer swizzling is needed? Explain the different types of it.
96. Explain with suitable example about DTD.
97. Explain with suitable example about XML Schema.
98. Explain in detail about XML Querying.
99. Explain in detail about mobile database recovery schemes.
100. Explain replication in NoSQL.
101. Explain in detail about CRUD operations in MongoDB.

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