

Enrollment No.....



Faculty of Engineering
End Sem (Odd) Examination Dec-2022
CS3ET06 No SQL Database

Programme: B.Tech.

Branch/Specialisation: CSE

Duration: 3 Hrs.**Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

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|-----|------|--|---|
| Q.1 | i. | Which of the following is not a NoSQL database? | 1 |
| | | (a) SQL server (b) MongoDB | |
| | | (c) Cassandra (d) None of these | |
| | ii. | NoSQL can be referred to as _____. | 1 |
| | | (a) No SQL (b) Only SQL | |
| | | (c) Not only SQL (d) SQL undefined | |
| | iii. | Which of the following is not a reason NoSQL has become a popular solution for some organizations? | 1 |
| | | (a) Better scalability | |
| | | (b) Improved ability to keep data consistent | |
| | | (c) Faster access to data than relational database management systems (RDBMS) | |
| | | (d) More easily allows for data to be held across multiple servers | |
| | iv. | Which of the following is a reason to use an SQL database? | 1 |
| | | (a) It can easily store unstructured data | |
| | | (b) It's ACID-compliant | |
| | | (c) It can enable development in the cloud | |
| | | (d) All of these | |
| | v. | Which of the following format is supported by MongoDB? | 1 |
| | | (a) SQL (b) XML | |
| | | (c) BSON (d) All of these | |
| | vi. | A record in MongoDB is a _____. | 1 |
| | | (a) Document (b) Table | |
| | | (c) Application (d) None of these | |

P. T. O.

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- vii. Which of the following is present in graph database? **1**
 (a) Node (b) Edge
 (c) Both (a) and (b) (d) None of these
- viii. In a column-database, a row is uniquely identified by _____. **1**
 (a) Column-identifier (b) Column-family
 (c) Row-key (d) None of these
- ix. Web Crawler is also called as _____. **1**
 (a) Search optimizer (b) Link directory
 (c) Web manager (d) Web spider
- x. SEO stands for _____. **1**
 (a) Search entry optimization
 (b) Search engine optimization
 (c) Search engine operation
 (d) None of these
- Q.2 i. Compare NoSQL databases with SQL databases. **2**
 ii. Explain CAP (consistency, availability, partition tolerance) theorem in related to distributed data store. **3**
 iii. What do you mean by consistency methods? Explain ACID properties in details in case of SQL databases. **5**
- OR iv. Where BASE properties are applicable? Explain BASE properties in details. **5**
- Q.3 i. How do you scale database? **2**
 ii. Explain different types of NoSQL databases given with their features. **8**
 (a) MongoDB (b) Cassandra
 (c) HBase (d) Redis
- OR iii. Explain why to choose NoSQL database over SQL database based on following consideration. **8**
 (a) Multi-Model (b) Easily scalable
 (c) Distributed (d) Redundancy
 (e) Flexible schemas (f) Horizontal scaling
 (g) Sharding (h) Vertical scaling

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- Q.4 i. Differentiate between key-value and document-based database. **3**
 ii. What do you mean by key-value store? Explain use cases of key-value store. Give example of key-value store. **7**
- OR iii. What do you mean by document-based databases? Explain use cases of document-based databases. Give example of document-based databases. **7**
- Q.5 i. Explain following graphs with diagrams: **4**
 (a) Undirected (b) Directed graph
 (c) Weighted graph (d) Bipartite graph
 ii. Explain features of column family database. How consistency and scaling is done in column databases? **6**
- OR iii. Define graph database. Design a graph database schema model for email fraud detection. Explain use cases of graph database model. **6**
- Q.6 Attempt any two:
 i. List down feature of search engines. **5**
 ii. What is search engine? Explain each type in details. **5**
 (a) Crawler based search engines
 (b) Human powered directories
 (c) Hybrid search engines
 iii. What is Elasticsearch? How does Elasticsearch work? What is Elasticsearch example? When should you use Elasticsearch? **5**

Marking Scheme

CS3ET06 No SQL Database

Q.1	i.	Which of the following is not a NoSQL database?		1
		(a) SQL server		
	ii.	NoSQL can be referred to as _____.		1
		(c) Not only SQL		
	iii.	Which of the following is not a reason NoSQL has become a popular solution for some organizations?		1
		(b) Improved ability to keep data consistent		
	iv.	Which of the following is a reason to use an SQL database?		1
		(a) It can easily store unstructured data		
	v.	Which of the following format is supported by MongoDB?		1
		(c) BSON		
	vi.	A record in MongoDB is a _____.		1
		(a) Document		
	vii.	Which of the following is present in graph database?		1
		(c) Both (a) and (b)		
	viii.	In a column-database, a row is uniquely identified by _____.		1
		(c) Row-key		
	ix.	Web Crawler is also called as _____.		1
		(d) Web spider		
	x.	SEO stands for _____.		1
		(b) Search engine optimization		
Q.2	i.	Compare NoSQL databases with SQL databases.		2
		At least 2 points 1 mark for each		
	ii.	CAP (consistency, availability, partition tolerance) theorem in related to distributed data store.		3
		1 mark for each		
	iii.	Consistency methods	2.5 marks	5
		ACID properties	2.5 marks	
OR	iv.	Where BASE properties are applicable	2.5 marks	5
		BASE properties	2.5 marks	
Q.3	i.	Scale database		2
	ii.	Types of NoSQL databases given with their features.		8
		2 marks for each (2 marks * 4)		

OR	iii.	Explain why to choose NoSQL database over SQL database based on following consideration. 1 mark for each		8
Q.4	i.	Differentiate between key-value and document-based database. At least three differences 1 mark for each		3
	ii.	Key-value store	2 marks	7
		Use cases of key-value store	2 marks	
		Example of key-value store	3 marks	
OR	iii.	Document-based databases	2 marks	7
		Use cases of document-based databases	2 marks	
		Example of document-based databases	3 marks	
Q.5	i.	Explain following graphs with diagrams: 1 mark for each		4
	ii.	Features of column family database	3 marks	6
		Consistency and scaling	3 marks	
OR	iii.	Definition graph database	2 marks	6
		Graph database schema model	2 marks	
		Use cases of graph database model	2 marks	
Q.6		Attempt any two:		
	i.	Feature of search engines. 1 mark for each		5
	ii.	What is search engine	2 marks	5
		(a) Crawler based search engines	1 mark	
		(b) Human powered directories	1 mark	
		(c) Hybrid search engines	1 mark	
	iii.	Elasticsearch	2 marks	5
		How does Elasticsearch work	1 mark	
		Example	1 mark	
		Use Elasticsearch	1 mark	
