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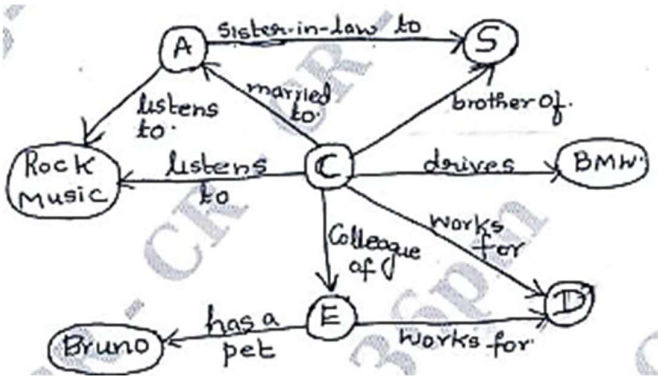
Channasandra, Dr. Vishnuvardhan Road, Bengaluru - 560 098
Ph:(080)28611880,28611881 URL: www.rnsit.ac.in

Estd : 2001

DEPARTMENT OF AI & ML

QUESTION BANK

SUBJECT TITLE	**NoSQL Database**	*SUBJECT TYPE*			**Pro. Elective**
SUBJECT CODE	**21CS745**	*SCHEME*			**CBCS(2021)**
ACADEMIC YEAR	**2024-25 (ODD SEMESTER)**	**BATCH**			**2021-2025**
SEMESTER	**VII**	**CIE**	**50**	**SEE**	**50**
LECTURE HOURs/WEEK	**4**	*TOTAL LECTURE HOURS*			**40**
FACULTY NAME	**Dr. Rama Satish K V,**	*NO. OF TIMES HANDLED*			**01**

Module -1: Why NoSQL, **Aggregate Data Models** *and More on Data Models*			
Q. No.	***Questions***	***BCL***	***Cos***
1	What is NoSQL?	L1	CO1
2	Explain briefly about aggregate data models with a neat diagram and considering an example of relational model and aggregate data model.	L2	CO1
3	Explain the evolution of databases from object oriented to NOSQL databases.	L1	CO1
4	Which data model does not support aggregate orientation? Give the reason.	L2	CO1
5	Differentiate between key value and document-oriented data models.	L1	CO1
6	Use the above graphical representation and answer the following questions with justification.  i) Who listens to rock music and works for D? ii) Who works for D and has a married colleague? iii) Who listen to rock music? iv) How are A and S related to each other and also to C? v) What are the genders of C and A?	L1	CO1
7	Define impedance mismatch. Briefly explain the advantages of relational databases.	L1	CO1
8	Define materialized view. How are they different from views? Briefly explain the two main strategies to build a materialized view.	L2	CO1

9	Briefly describe the value of Relational databases.	L2	CO1
10	Write a short notes on : i) Consequences of aggregate Orientation ii) Key-Value Data model iii) Document Data Model	L2	CO1
11	Explain about graph databases with a neat diagram.	L2	CO1
12	What are schema less databases? Explain.	L2	CO1
13	Describe the data arrangement and access in column family data store with example.	L1	CO1
14	Differentiate SQL and NOSQL.	L1	CO1
15	What are four categories of NoSQL databases? List some database products for each category.	L1	CO1
	Module - 2: Generics		
Q. No.	***Questions***	***BCL***	***Cos***
1	Compare the similarities and differences between single server and master slave data distribution model.	L1	CO2
2	Why data distribution is important. List the different data distribution models of NOSQL.	L1	CO2
3	Identify the type of conflict in the following scenario. How can it be solved? Alice and Bob share a common google sheet Online Both read the file. Alice updates the document and forgets to save the file. On the other end Bob updates the Google sheet and saves the file. The content updated by Alice is overwritten by Bob. The data updated by Alice is lost.	L2	CO2
4	List and explain the approaches through which version stamps can be constructed for a single authorifative source for data models.	L2	CO2
5	Define quorum. Explain read quorum and write quorum with examples.	L2	CO2
6	Explain the following: i) Single Server ii) Replication iii) Sharding iv) Combining sharding and replication	L1	CO2
7	Explain the following with respect to consistency in NoSQL i) Relaxing consistency ii) CAP theorem iii) Relaxing durability	L3	CO2
8	What is the CAP theorem? What are three properties which cannot be simultaneously guaranteed? How it is applicable to NoSQL Systems.	L2	CO2
9	Define write quorum, read quorum, replication factor along with their expressions.	L2	CO2
10	Design a database schema using NoSQL principles for a student database.	L3	CO2
11	What factors should be considered when deciding whether to use NoSQL or traditional relational databases for a particular project?	L2	CO1
12	Write a note on i) Peer to Peer Consistency ii) Replication	L3	CO1