SRN

PES University, Bangalore
(Established under Karnataka Act 16 of 2013)

UE14CS313

END SEMESTER ASSESSMENT (ESA) B. TECH. 5TH SEMESTER – December 2018

UE14CS313 - Advanced Database Management Systems

Time: 3 Hours	Answer All Questions	Max Marks: 100
	Make suitable assumptions when necessary and state them	

1.	a	Explain the terms: Domain, attribute, tuple, relation and relation state. What are the equivalent terms for the above in SQL?	8
	b	What are the three types of update operations on a relation? Give the SQL statements for these update operations with examples. What is a transaction and how is an update operation different from a transaction?	8
	c	Explain Primary Key and Foreign Key. Differentiate between PRIMARY KEY and UNIQUE keywords as used in SQL.	4
2.	a	Why do we need parallel databases? Explain the *shared memory* and *shared disk* architectures for parallel databases with advantages and disadvantages.	8
	b	Why do we need distributed databases? What is fragmentation and replication? Explain why we need them and their types.	8
	c	Explain the 2-Phase Commit protocol.	4
3.	a	Explain the OLAP operations: Roll-up and Drill-down. What is ROLAP and MOLAP?	8

| b | Write the SQL statements for the following requirement: SCHEMA and example data | 8 |

POPULATION(STATE, DISTRICT, TALUK, CITY_TOWN_VILLAGE, POPULATION)

STATE	DISTRICT	TALUK	CITY_TOWN_VILLAGE	POPULATION
KA	MYSURU	MYSURU	MYSURU	1200000
KA	MANDYA	SRIRANGAPATNA	SRIRANGAPATNA	50000
KA	MYSURU	NANJANAGUDU	NANJANAGUDU	72000
KA	MYSURU	T-NARASIPURA	T-NARASIPURA	17000

i. What is the total population of the state KA?
ii. List the districts and population in descending order of the population of the state KA.
iii. Which city has the highest population in the state KA?

c	Identify and explain the components of a data warehouse using a diagram.	4
4.	a	State the reasons for considering NoSQL databases over relational databases. List the four types of NoSQL databases. What is the primary use of each of these four types?	8
	b	What is Hadoop? Explain in brief. What are the components of Hadoop V2 (with a diagram)?	8
	c	What is CAP theorem? Compare the C in CAP to the C in ACID.	4
5.	a	List and explain the 5 Vs of Big-Data.	6
	b	Write short notes on i. Deductive Database ii. Temporal Database	6
	c	Design a database schema for a manager to analyze the sales (quantity as well as amount in rupees) of products in various stores spread through out the country. The manager would like to analyze sales by PRODUCT, STORE, and TIME. Draw the schema diagram. Identify the keys.	8

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