VR20

Reg. No:

VELAGAPUDI RAMAKRISHNA

SIDDHARTHA ENGINEERING COLLEGE

(AUTONOMOUS)

II/IV B.Tech. DEGREE EXAMINATION, JANUARY, 2022

Third Semester

AI&DS

20AI&DS3303 DATABASE SYSTEMS

Time: 3 hours ***Max. Marks: 70***

Part-A is compulsory

Answer One Question from each Unit of Part - B

Answer to any single question or its part shall be written at one place only

PART-A

10 x 1 = 10M

1.	a.	What are aggregate operators?	**(CO1 K1)**
	b.	Write the syntax for select and create queires.	**(CO1 K1)**
	c.	What are the applications of DBMS?	**(CO1 K1)**
	d.	How to represent the strong entity set and weak entity set in ER-model?	**(CO2 K2)**
	e.	Write brief notes on NULL values.	**(CO2 K1)**
	f.	What is first normal form.	**(CO3 K1)**
	g.	List different states of transaction.	**(CO3 K1)**
	h.	Define query processing.	**(CO4 K1)**
	i.	What is meant by recoverability?	**(CO4 K1)**
	j.	What is meant by atomicity?	**(CO3 K1)**

PART-B

4 x 15 = 60M

UNIT-I

2. a. With a neat diagram, explain the components of database system structure. **(CO1 K2) 8M**

   b. Explain various data manupulation operations in SQL with examples. **(CO1 K2) 7M**

(or)

3. a. Consider the following relations
   Supplier(Sid, Sname, Address)
   Parts(Pid, Pname, Color)
   Catalog(Sid, Pid, Cost)
   Write the following queries in SQL
   i) Find the Snames of the suppliers who supply every part.
   ii) For each part, find the Sname of the supplier who charges the most for that part. **(CO1 K3) 8M**

   b. How are different schema layers related to the concepts of logical and physical data independence? What are the functions of database manager? **(CO1 K2) 7M**

UNIT-II

4. a. Construct an ER diagram for University Admission System. Incorporate all the features in the diagram. **(CO2 K3) 8M**

   b. Explain aggregate and database modification operators in relational algebra. **(CO2 K2) 7M**

(or)

5. a. Compare between super key, candidate key, primary key for a relation with examples. **(CO2 K2) 8M**

   b. Draw ER diagram for the following: A teacher can teach many courses. A student can enroll in many courses. A course may be a part of one or many programmes. A teacher can be mentor for many students, however a student can have only one mentor. **(CO2 K3) 7M**

UNIT-III

6. a. Discuss the problems caused by redundancy. How to handle these problems in database management systems? **(CO3 K2) 8M**

   b. What is transaction? Explain the properties of transaction. **(CO3 K2) 7M**

(or)

7. a. Explain third normal form and fourth normal form. **(CO3 K2) 8M**

   b. Does a relation with two or more columns always have multivalue dependency? Show with an example. **(CO3 K2) 7M**

UNIT-IV

8. a. Explain about 2PL protocol in detail. **(CO4 K2) 8M**

   b. Briefly discuss about ARIES algorithm. **(CO4 K2) 7M**

(or)

9. a. Discuss any one advanced recovery technique for DBMS. **(CO4 K2) 8M**

   b. Explain the steps involved in query processing with neat diagram. **(CO4 K2) 7M**

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