VR20 Reg. No: | | | | | | | | | | |

VELAGAPUDI RAMAKRISHNA

SIDDHARTHA ENGINEERING COLLEGE

(AUTONOMOUS)

III/IV B.Tech. DEGREE EXAMINATION, DECEMBER, 2022

Fifth Semester

COMPUTER SCIENCE AND ENGINEERING

20CS5301 DATABASE MANAGEMENT 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 is a trigger in DBMS?	**(CO1 K2)**
	b.	Define physical data independence.	**(CO1 K1)**
	c.	Differentiate between weak entity and strong entity.	**(CO2 K2)**
	d.	Write the basic syntax of SELECT command.	**(CO1 K1)**
	e.	What are domain constraints? Give an example.	**(CO2 K2)**
	f.	Define update anamoly.	**(CO4 K2)**
	g.	What is a recoverable schedule?	**(CO4 K2)**
	h.	What are cascading aborts?	**(CO4 K2)**
	i.	What are unary operations in relational algebra? Give examples.	**(CO2 K2)**
	j.	R=(A,B,C,D,E), R1 = (A,B,C), R2 = (C,D,E). The set of functional dependencies are A->BC, CD->E, B->D, E->A. Is this decomposition not a lossless – join decomposition?	**(CO3 K4)**

PART-B

4 x 15 = 60M

UNIT-I

2. a. Draw the structure of DBMS and explain all its components. **(CO1 K2) 9M**

   b. What are operations that can be performed with DDL? **(CO1 K2) 6M**

(or)

3. a. What are the aggregate functions in SQL ? Explain with an example. **(CO1 K1) 8M**

   b. Illustrate the operations that are supported by DML with an example. **(CO1 K2) 7M**

UNIT-II

4. a. What is Data model ? Explain about E-R model. **(CO2 K1) 6M**

   b. Describe the two alternatives for specifying the structural constraints on relationship types. Write the advantages and disadvantages. **(CO2 K2) 9M**

(or)

5. a. What is an attribute ? Discuss all types of attributes. **(CO2 K1) 6M**

   b. Draw an ER model of the Banking database application considering the following constraints :
   i) A bank has many entities
   ii) Each customer has multiple accounts
   iii) Multiple customers belong to a single branch
   iv) Single customer can borrow multiple loans
   v) A branch has multiple employees. **(CO5 K3) 9M**

UNIT-III

6. a. Describe outer joins and division operations of relational algebra with an example. **(CO3 K2) 7M**

   b. Explain how to enforce domain constraints and referential integrity constraints in SQL. **(CO3 K2) 8M**

(or)

7. a. Consider the following relations of a flight information.
   Flights (flno:integer, from:string, to:string, distance:integer, departs:time, arrives:time)
   Aircraft(aid:integer, aname:string)
   Certified(eid:integer, aid:integer)
   Employees(eid:integer, ename:string, salary:integer)
   i) Create tables for the above information by adding constraints wherever applicable. **(CO5 K5) 10M**

   b. What is multi valued dependency? Describe 4NF. **(CO3 K1) 5M**

UNIT-IV

8. a. Describe different states of a transaction. **(CO4 K2) 6M**

   b. Consider the following schedule:
   R3(X); R1(X); R2(X); W2(X); R1(X);R3(X).
   Is the schedule Conflict-Serializable? Explain. **(CO4 K4) 9M**

(or)

9. a. Describe about Two Phase Locking and mention different types of it. **(CO4 K2) 8M**

   b. Describe the steps involved in ARIES recovery algorithm . **(CO4 K2) 7M**

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