P P SAVANI UNIVERSITY

Second Semester of B.Sc.IT Examination

January 2022

SSIT1050 Database Management System

28.01.2022, Friday **Time: 12:30 p.m. To 03:00 p.m.** **Maximum Marks: 60**

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

Q - 1	Answer the following questions.	**[05]**
(i)	What is schema? Give one example.	
(ii)	What is candidate key? Give one example.	
(iii)	DDL Stands for_____? Write some commands of DDL.	
(iv)	What is the concept of nested-query in term of SQL?	
(v)	An attribute of an entity can have more than one values (True/False).	
Q - 2 (a)	Explain the three level architecture of DBMS and its advantages.	**[05]**
Q - 2 (b)	Enlist and explain Transaction Control commands with suitable example.	**[05]**
	OR	
Q - 2 (a)	Briefly explain projection, selection, set difference and division operator in relational Algebra with proper example.	**[05]**
Q - 2 (b)	Write short note on query processing with neat diagram.	**[05]**
Q - 3 (a)	Explain disadvantages of conventional file-based system compared to Database management system.	**[05]**
Q - 3 (b)	Consider following database schema and solve queries: customer = (customer_id, customer_name, customer_street, customer_city) loan = (loan_number, amount) borrower = (customer_id, loan_number) payment = (loan_number, payment_number, payment_date, payment_amount) 1. Modify street and city of customer whose customer_id is "C201". 2. Display details of customers whose name contains "Avi" as a substring. 3. List out all the payments done on 15-JAN-2022.	**[05]**
	OR	
Q - 3 (a)	List and Explain aggregate function with example.	**[05]**
Q - 3 (b)	The relation book (title, price) contains the titles and prices of different books. Assuming that no two books have the same price, Select B.title From book as B Where (Select count(*) from book as T Where T.price > B.price) < 5 What does the following SQL query list? a) Titles of the four most expensive books b) Title of the fifth most inexpensive book. c) Title of the fifth most expensive book. d) Titles of the five most expensive books.	**[05]**
Q - 4	Attempt any one.	**[05]**
(i)	Explain Having Clause and Order By Clause with example.	
(ii)	Discuss left outer Join, right outer join and Full outer join with example.	

SECTION – II

Q - 1	Answer the following questions.	**[05]**
(i)	What do you mean by ER diagram?	

(ii)	What is multivalued attribute? Give one example.	
(iii)	What is functional dependency? Give one example.	
(iv)	What is weak entity set? Give one example.	
(v)	Why normalization required?	
Q - 2 (a)	Explain Mapping cardinality and it's type with example.	**[05]**
Q - 2 (b)	Draw E-R diagram for Hospital Management system.	**[05]**
	OR	
Q - 2 (a)	What are different Extended E-R features? Discuss any one with proper example.	**[05]**
Q - 2 (b)	Relational schema R ={ABCDEF} Where functional dependency F = {AB –> C, AC –>B, AD –> E, B –>D, BC –>A, E –>F } Relation R decomposed in to R1(ABC), R2(ACDE) and R3(ADF) Show that whether given relation is lossless join or lossy join decomposition?	**[05]**
Q - 3 (a)	Write a short note on reduction to E-R database schema.	**[05]**
Q - 3 (b)	Relational schema R ={A,B,C,D,E,H} Where functional dependency **(05)** F = {AB --> C, AC --> B, AD --> E, B --> D, BC --> A, E --> G} Relation R decomposed in to R1(ABC) and R2(ACDE) Show that whether given relation is lossless join or lossy join decoposition?	**[05]**
	OR	
Q - 3 (a)	Explain Conflict serializability and view serializability.	**[05]**
Q - 3 (b)	F and G are two functional dependencies where F={A –> B, B –> C, C –> A} G={A –> BC, B –> AC, AB –> C, BC –> A, C –>B} Show that whether function F and G are equivalent or not?	**[05]**
Q - 4	Attempt any one.	**[05]**
(i)	Enlist the Five problems due to concurrency and explain any one with its solution.	
(ii)	Schedule S= R1(A) W1(A) W2(A) R2(B) W1(B) W3(A) W3(B) Check Whether given Schedule is View Serial or not ?	

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