Seat No.: _____   Enrolment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY
Diploma Engineering – SEMESTER – 3 (NEW) – EXAMINATION – Winter-2023

Subject Code: 4331603   **Date: 18-01-2024**
Subject Name: Database Management
Time: 02:30 PM TO 05:00 PM   **Total Marks: 70**
Instructions:
1. **Attempt all questions.**
2. **Make Suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Use of programmable & Communication aids are strictly prohibited.**
5. **Use of non-programmable scientific calculator is permitted.**
6. **English version is authentic.**

			Marks
Q.1	**(a)**	Define the following terms: a). Data items b). Data dictionary c).Meta data નીચેના શબ્દો વ્યાખ્યાયિત કરો: a). Data items b). Data dictionary c).Meta data	**03**
	(b)	Explain disadvantages of File oriented system. ફાઇલ ઓરિએન્ટેડ સિસ્ટમના ગેરફાયદા સમજાવો.	**04**
	(c)	Describe the responsibilities of DBA in detail. DBA ની જવાબદારીઓનું વિગતવાર વર્ણન કરો.	**07**
		OR	
	(c)	Define data abstraction? Explain Three level Architecture of DBMS. Data abstraction ની વ્યાખ્યા આપો? DBMS નું ત્રણ સ્તરનું આર્કિટેક્ચર સમજાવો.	**07**
Q.2	**(a)**	Define the Following Terms :a).Relationship set b).Participation c).Candidate key નીચેના શબ્દો વ્યાખ્યાયિત કરો: a).Relationship set b).Participation c).Candidate key	**03**
	(b)	Explain Generalization with example. Generalization ઉદાહરણ સાથે સમજાવો.	**04**
	(c)	Define E-R diagram? Explain different symbols used in E-R diagram with example. E-R Diagram ની વ્યાખ્યા આપો? E-R ડાયાગ્રામમાં વપરાતા વિવિધ Symbolsને ઉદાહરણ સાથે સમજાવો.	**07**
		OR	
Q.2	**(a)**	Define Relational Algebra? List out various operations in relational algebra? Relational Algebra ની વ્યાખ્યા આપો? Relational Algebra માં વિવિધ કામગીરીની યાદી આપો?	**03**
	(b)	Explain Specialization with example. Specialization ઉદાહરણ સાથે સમજાવો.	**04**
	(c)	Define attribute? Explain different types of attributes with example. Attribute ની વ્યાખ્યા આપો? વિવિધ પ્રકારના Attributeને ઉદાહરણ સાથે સમજાવો.	**07**
Q.3	**(a)**	Explain the GRANT and REVOKE statement in SQL. SQL માં GRANT અને REVOKE સ્ટેટમેન્ટ સમજાવો.	**03**
	(b)	Explain following Character functions. 1) INSTR 2) LENGTH નીચેના Character functionસમજાવો .1) INSTR 2) LENGTH	**04**
	(c)	Write SQL statements for following table: Student(Enno,name,branch,sem,clgname,bdate) 1. Create a table Student 2. Add a column mobno in Student table. 3. Insert one record in student table. 4. Find out list of students who have enrolled in "IT" branch. 5. Retrieve all information about student where name begin with 'a'. 6. Count the number of rows in student table.	**07**

1

7. Delete all record of student table.

નીચેના Table માટે SQL સ્ટેટમેન્ટ લખો:

Student(Enno,name,branch,sem,clgname,bdate)
1. Create a table Student
2. Add a column mobno in Student table.
3. Insert one record in student table.
4. Find out list of students who have enrolled in "IT" branch.
5. Retrieve all information about student where name begin with 'a'.
6. Count the number of rows in student table.
7. Delete all record of student table.

OR

Q.3	(a)	Explain equi join with example in SQL.	03
		SQL માં equi join ઉદાહરણસાથેસમજાવો.	
	(b)	Explain following Aggregate functions. 1) MAX 2) SUM	04
		નીચેના Aggregate function સમજાવો .1) MAX 2) SUM	
	(c)	Write SQL statements for the following table:	07

Employee(EmpID,Ename,DOB,Dept,Salary)
1. Create a table Employee
2. Find sum of salaries of all employee.
3. Insert one record in Employee table.
4. Find the names of employees who salary between 25000/- and 48000/-.
5. Display detail of all employees in descending order of their DOB.
6. List name of all employees whose name ends with 'a'.
7. Find highest and least salaries of all employees.

નીચેના Table માટે SQL સ્ટેટમેન્ટ લખો:

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7. Find highest and least salaries of all employees.

| Q.4 | (a) | Consider a following relational schema & give Relational Algebra Expressions for the following queries. | 03 |

Student (Enrollment_No,Name,DOB,SPI)
 i. List out all students whose SPI is greater than 7.0.
ii. List name of student whose enrollment number is 007.

નીચે દર્શાવિલ રિલેશનલ સ્કીમાં ને ધ્યાન માં લઇ દરેક ક્વેરી માટે રિલેશનલ એલજીબ્રા એક્સપ્રેસન લખો.

Student (Enrollment_No,Name,DOB,SPI)
 i. List out all students whose SPI is greater than 7.0.
ii. List name of student whose enrollment number is 007.

	(b)	Write a short note on partial functional dependency.	04
		Partial functional dependencyની ટૂંકી નોંધ લખો.	
	(c)	Explain need of Normalization? Discuss about 2NF with example.	07
		Normalization ની જરૂરિયાત સમજાવો? ઉદાહરણ સાથે 2NF વિશે ચર્ચા કરો.	

OR

| Q.4 | (a) | Consider a following relational schema & give Relational Algebra Expressions for the following queries. | 03 |

Student(Enno,name,age,address)
i. Find the name of students who live in Surat.
ii.List the name of students who are older than 30.

નીચે દર્શાવિલ રિલેશનલ સ્કીમાં ને ધ્યાન માં લઇ દરેક ક્વેરી માટે રિલેશનલ એલજીબ્રા એક્સપ્રેસન લખો.

Student(Enno,name,age,address)
i. Find the name of students who live in Surat.
ii.List the name of students who are older than 30.

| | (b) | Define 1 NF? Explain 1NF with suitable example. | 04 |

1NF ની વ્યાખ્યા આપો? યોગ્ય ઉદાહરણ સાથે 1NF સમજાવો.

	(c)	Define Transitive Dependency? Explain 3NF with suitable example.	**07**
		Transitive Dependency ની વ્યાખ્યા આપો? યોગ્ય ઉદાહરણ સાથે 3NF સમજાવો.	
Q.5	**(a)**	Define Serializability? Explain rules of serializability?	**03**
		Serializability ની વ્યાખ્યા આપો? Serializabilityના નિયમો સમજાવો?	
	(b)	Explain Attributes of Implicit Cursors.	**04**
		Implicit Cursorsના Attribute સમજાવો.	
	(c)	Explain two phase locking protocol with suitable example.	**07**
		Two phase locking protocol ને યોગ્ય ઉદાહરણ સાથે સમજાવો.	

OR

Q.5	**(a)**	Explain ACID properties of transaction.	**03**
		ટ્રાન્ઝેકશનની ACID પ્રોપર્ટી સસમજાવો.	
	(b)	Define Triggers? Explain advantages of triggers.	**04**
		Triggers ની વ્યાખ્યા આપો? ટ્રિગર્સના ફાયદા સમજાવો.	
	(c)	List down problems of concurrency control. Explain any two with suitable example.	**07**
		Problems of concurrency controlની યાદી બનાવો .કોઈપણ બેના યોગ્ય ઉદાહરણ સાથે સમજાવો.	