Seat No. / Enrolment No.:

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering – SEMESTER – 3 EXAMINATION – Summer-2026

Subject Code: 4331603 **Date: 18-05-2026**
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 simple calculators and non-programmable scientific calculators are permitted.**
5. **English version is authentic.**

			Marks
Q.1	(a)	What is DBMS? List Out Application of DBMS.	03
પ્રશ્ન.1	**(અ)**	DBMS **શું છે?** DBMS **ની ઉપયોગીતાની યાદી લખો.**	**૦૩**
	(b)	Explain Referential integrity Constraints.	04
	(બ)	Referential integrity Constraints **સમજાવો.**	**૦૪**
	(c)	List out the type of DBMS Architecture and Explain any two with example.	07
	(ક)	DBMS **આર્કીટેક્ચરના પ્રકારો લખો અને કોઈપણ બે ઉદાહરણ સાથે સમજાવો.**	**૦૭**
		OR	
	(c)	Explain Roles and Responsibilities of DBA.	07
	(ક)	DBA **ની ભૂમિકાઓ અને જવાબદારીઓ સમજાવો.**	**૦૭**
Q.**2**	(a)	Explain "Degree of Relationship" set with diagram.	03
પ્રશ્ન.2	**(અ)**	**આકૃતિ સાથે સમજાવો** "Degree of Relationship set"	**૦૩**
	(b)	Explain Generalization and Specialization in ER Diagram.	04
	(બ)	ER Diagram **મા** Generalization **અને** Specialization **સમજાવો.**	**૦૪**
	(c)	What is RDBMS? Explain Select Operation, Project Operation and Union Operation with example.	07
	(ક)	RDBMS **શું છે?** Select Operation, Project Operation **અને** Union Operation **ઉદાહરણ સાથે સમજાવો.**	**૦૭**
		OR	
Q.**2**	(a)	Explain in short Primary Key, Candidate Key, and Foreign Key.	03
પ્રશ્ન.2	**(અ)**	Primary Key, Candidate Key, **અને** Foreign Key **ટૂંકમાં સમજાવો.**	**૦૩**
	(b)	Explain Component of ER Diagram.	04
	(બ)	ER Diagram **ના ઘટકો સમજાવો.**	**૦૪**
	(c)	Explain Natural Join Operation, Outer Join Operation and Assignment Operation with example.	07
	(ક)	Natural Join Operation, Outer Join Operation **અને** Assignment Operation **ઉદાહરણ સાથે સમજાવો.**	**૦૭**

Q. 3	(a)	Explain DML Commands.	03
પ્રશ્ન.3	(અ)	DML Commands સમજાવો.	૦૩
	(b)	Explain GRANT and REVOKE commands in SQL.	04
	(બ)	SQL માં GRANT અને REVOKE commands સમજાવો.	૦૪
	(c)	Write SQL queries to use various numeric functions (a) Display integer value of 125.25. (b) Display absolute value of(-15) (c) Display ceil value of 55.65 (d) Display floor value of 100.2 (e) Display the square root of 16. (f) Display square root of 20. (h) Display result of 24 mod 2.	07
	(ક)	વિવિધ numeric functions વાપરવા માટે SQL queries લખો. (a) 125.25 ની integer value દર્શાવો. (b) (-15) ની absolute value દર્શાવો. (c) 55.65 ની ceil value દર્શાવો. (d) 100.2 ની floor value દર્શાવો. (e) 16 ની square root દર્શાવો. (f) **20** ની square root દર્શાવો. (h) 24 mod 2 નું પરિણામ દર્શાવો.	૦૭

OR

Q. 3	(a)	Explain “Order by” Clause in SQL	03
પ્રશ્ન.3	(અ)	SQL માં “Order by” ક્લોઝ સમજાવો.	૦૩
	(b)	Explain DDL Commands.	04
	(બ)	DDL Commands સમજાવો.	૦૪
	(c)	Design the below given schemas using SQL Command - “Create”. Decide the appropriate data type for each column. (a)Create a table ACCOUNT with column account number, name, city, balance, loan taken. (b)Create a LOAN table with column loan number, account number, loan amount, interest rate, loan date, remaining loan. (c)Create table INSTALLMENT with column loan number, installment number, installment date and amount. (d)Create table TRANSACTION with column account number, transaction date, amount, type of transaction, mode of payment. (e) Show the structure of above tables using “Describe” command. (f) insert 2 values in ACCOUNT table (g) Display the branch wise balance from account table.	07
	(ક)	SQL Command “Create” ની મદદથી નીચે આપેલ schemas Design કરો. દરેક column માટે યોગ્ય data type નક્કી કરો. (a) account number, name, city, balance, loan taken નામની column સાથે ACCOUNT table Create કરો.	૦૭

(b) loan number, account number, loan amount, interest rate, loan date, remaining loan નામની column સાથે LOAN table Create કરો.

(c) column loan number, installment number, installment date, amount નામની column સાથે INSTALLMENT table Create કરો.

(d) "Describe" Command વડે ઉપર દર્શાવેલ tables નું structure દર્શાવો.

(e) ACCOUNT અને LOAN table માં 2 values insert કરવો.

(f) ACCOUNT table માંથી branch પ્રમાણે balance દર્શાવો.

Q. 4	(a)	Explain "Mapping Cardinality".	03
પ્રશ્ન.4	(અ)	"Mapping Cardinality" સમજાવો.	૦૩
	(b)	Explain "minus" and "Union" with example.	04
	(બ)	"Minus" અને "Union" ઉદાહરણ સાથે સમજાવો.	૦૪
	(c)	Explain in detail 3nf Normal form with example.	07
	(ક)	3nf Normal form ઉદાહરણ સાથે વિગતમાં સમજાવો.	૦૭

OR

Q. 4	(a)	Explain "Weak Entity Sets".	03
પ્રશ્ન.4	(અ)	"Weak Entity Sets" સમજાવો.	૦૩
	(b)	Explain "self join" with example.	04
	(બ)	"self join" ઉદાહરણ સાથે સમજાવો.	૦૪
	(c)	Explain Importance of Normalization and First Normal Form with example.	07
	(ક)	Normalization નું મહત્વ અને First Normal Form ઉદાહરણ સાથે સમજાવો.	૦૭
Q.5	(a)	Write a short note on problems of concurrent execution of transaction.	03
પ્રશ્ન.5	(અ)	transaction ના concurrent execution ની સમસ્યાઓ પર ટૂંકી નોંધ લખો.	૦૩
	(b)	Explain Transitive Dependency.	04
	(બ)	Transitive Dependency સમજાવો.	૦૪
	(c)	Explain locking mechanism with example.	07
	(ક)	ઉદાહરણ સાથે લોકીંગ મીકેનીઝમ સમજાવો.	૦૭

OR

Q.5	(a)	Explain the properties of Transaction.	03
પ્રશ્ન.5	(અ)	Transactions ના ગુણધર્મો સમજાવો.	૦૩
	(b)	Explain "Partial Functional Dependency".	04
	(બ)	"Partial Functional Dependency" સમજાવો.	૦૪
	(c)	Explain Serializability of transactions with example.	07
	(ક)	Transactions Serializability ઉદાહરણ સાથે સમજાવો.	૦૭