



**SY/SEM-III/AIDS**

**B. Tech Artificial Intelligence and Data Science**

**38122301**

**ADC301**

**Database Management Systems**

**Date:22/11/2023**

**Time:10.30am-12.30pm**

**MaxMarks:60**

<b>Q.1</b>	<b>Solve any Four</b>	<b>Marks</b>	<b>CO</b>	<b>BT</b>
a)	Describe five responsibilities of a database administrator also explain the problems that would arise if the responsibility were not handled properly.	5	CO1	BT4
b)	What is an attribute? Describe different type of attributes.	5	CO2	BT2
c)	Define functional dependencies. Explain transitive dependency used in normalization.	5	CO3	BT3
d)	Explain aggregation(aggregate) functions in SQL with examples.	5	CO4	BT3
e)	Define view in SQL. How to create view in SQL. Give example.	5	CO4	BT5
f)	Elaborate on the key ACID properties associated with transaction?	5	CO6	BT4
<b>Q.2</b>	<b>Solve any Four</b>	<b>Marks</b>	<b>CO</b>	<b>BT</b>
a)	Differentiate between Weak and Strong Entity Set.	5	CO1	BT4
b)	Consider the Following relation: Construct the relational algebra queries for relation given. Person (id, name, age, salary) 1. Write a query to display names of person starting with letters 'S'. 2. Write a query to list number of persons with age > 30. 3. Write a query to list person name having salary greater than 30000	5	CO2	BT6
c)	Explain 2 <sup>nd</sup> Normal Form with example.	5	CO3	BT2
d)	Compare and contrast between the inner join and outer joins in SQL.	5	CO4	BT4
e)	What are the key advantages of functions in PL-SQL?	5	CO5	BT2
f)	Describe the functioning of the Two-Phase Locking Protocol in concurrent transaction management.	5	CO6	BT2



D Y PATIL

DEEMED TO BE

UNIVERSITY

NAVI MUMBAI

**Q.3 Solve any Two**

**Marks CO BT**

- a) Design a comprehensive Entity-Relationship (ER) diagram that effectively models the data structure required to manage and organize the operations of a college library management system. Assume suitable entities and relationship. Also show mapping relationship between entities. 10 CO1 BT6
- b) Explain transactions concept in DBMS? Draw state transaction diagram and explain. 10 CO6 BT3
- c) Consider a relation: Construct **SQL queries** for the given relationships. 10 CO4 BT6  
Employee(eid, ename, age, salary, deptid)  
Department (deptid, dname)
- a. Find employee name along with its department name.
- b. Find the name of employees who are earning salary between 20000 and 30000. (Use between operator).
- c. Find the average salary of employee department wise.
- d. Count the no. of employee whose age <35 years.