SUMMER-2024	
Exam Seat No.:	
Academic Year:2023-2024	Semester:IV
Class:SY	Program:B.Tech
Branch Code:ADS	Pattern:2022
Name of Course:Database Management Systems	Course Code:ADS222014
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 3 pages.
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.
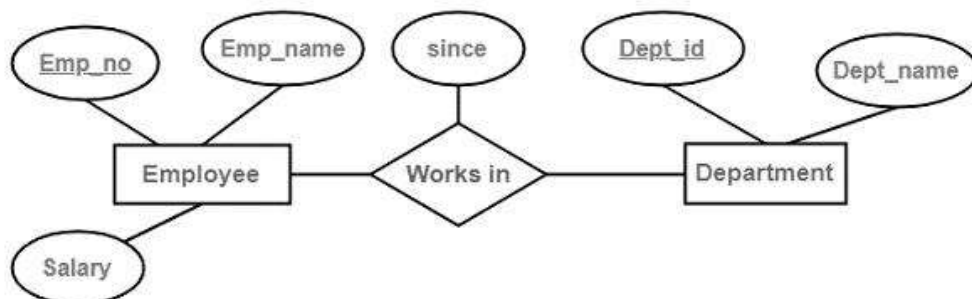
Question No. 1 Attempt following Question

1	Explain DDL and DML Commands.	(6)	CO1

Question No. 2 Attempt following Question

2	What is difference between SQL and PL/SQL?	(6)	CO2

Question No. 3 Attempt following Question

3.a)	How many tables are required to represent the Entity set and relationship set of the following ER diagram. Convert the given ER diagram into tables.	(6)	CO2

OR

3.b)	Define following terms with examples	(6)	CO3

i) Data Models

ii) Mapping Cardinality

iii) Composite attributes

iv) Derived attributes

v) Multivalued attributes

vi) Key attributes

3.c)	Explain 2NF and 3NF with suitable example.	(5)	CO3

<center>**OR**</center>

3.d)	Consider the Schema Employee(Emp_No, Emp_Name, Address, Dept_No, Dept_Name,Dept_Manager). Does this schema have any anomalies? Justify	(5)	CO3

3.e)	What is meant by lossy and lossless decomposition. How can we perform lossless decomposition?	(5)	CO3

<center>**OR**</center>

3.f)	Compute the closure of the following set F of functional dependencies for relation schema R = {A, B, C, D, E}.	(5)	CO3

A -> BC

CD -> E

B -> D

E -> A

List the candidate keys for R.

Question No. 4 Attempt following Question

4.a)	Compare parallel and distributed databases.	(6)	CO4

<center>**OR**</center>

4.b)	Distinguish between centralized and client -server architectures.	(6)	CO4

4.c)	Explain CAP theorem and BASE property of the NoSQL database.	(5)	CO4

<center>**OR**</center>

4.d)	What is structured, semi- structured and unstructured data? Give examples of each.	(5)	CO4

4.e)	Discuss the MongoDB aggregation framework with suitable example.	(5)	CO4

<center>**OR**</center>

4.f)	What are the types of NOSQL data model. Explain document based data model.	(5)	CO4

Question No. 5 Attempt following Question

5.a)	State and explain ACID properties of the transaction.	(6)	CO5

<center>**OR**</center>

5.b)	What is a serializable schedule? Explain conflict and view serializable schedule	(6)	CO5

5.c)	List and Explain different states through which transaction goes during its execution.	(5)	CO5

5.d) Write a short note on "Log based recovery". (5) CO5

5.e) Explain Shadow paging recovery scheme. (5) CO5

5.f) Explain Two phase locking protocol. (5) CO5

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