

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE**

Winter Supplementary Examination – 2023

Course: B. Tech. Branch : Artificial Intelligence & Data Science Semester :IV

Subject Code & Name: Database Management System (BTAIC402)

Max Marks: 60

Date:18-01-2024

Duration: 3 Hr.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

	Marks
Q. 1 Solve Any Two of the following.	12
A) With the help of block diagram, describe the basic architecture of a database management system.	6
B) What are the disadvantages of file processing system?	6
C) Draw and explain three level architecture of DBMS.	6
Q.2 Solve Any Two of the following.	12
A) State and explain 3NF with example.	6
B) Consider following schema: EMP (empno, deptno, ename, salary, designation, join_date, DOB, dept_location). Write down SQL queries for following: (i) Display employees name & number in decreasing order of salary. (ii) Display employee name & employee number whose designation is Manager. (iii) Display age of employees with ename. (iv) Display total salary of all employees. (v) Display employee names having deptno as 20 and dept_location is Mumbai (vi) Display name of employee who earned lowest salary.	6
C) Draw an ER diagram for library management system. (Use Books, Publisher & Member entities).	6
Q. 3 Solve Any Two of the following.	12
A) What is NOSQL? Explain the importance of NOSQL.	6
B) Differentiate between RDBMS and NoSQL databases.	6
C) Explain in detail about CAP theorem.	6
Q.4 Solve Any Two of the following.	12
A) Explain what is MongoDB? What is Namespace and sharding in MongoDB?	6
B) What are document databases? Explain with example.	6
C) Discuss characteristics of columnar databases.	6
Q. 5 Solve Any Two of the following.	12
A) Explain LSM trees in detail.	6
B) What is Graph database? What is query on Graph? What are the features of graph databases?	6
C) What are suitable use cases of Graph databases? When Graph will not be used?	6
