BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BCA   SEMESTER : III
BRANCH: BCA   SESSION : MO/2023

SUBJECT: CA203 DATABASE MANAGEMENT SYSTEMS

TIME: 3 Hours   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. **Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data handbook/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	What are the main functions of a database administrator (DBA)? Discuss.	[5]	1	1
Q.1(b)	Discuss the various types of keys that are used in the relational model.	[5]	2	1
Q.2(a)	Discuss the constraints of specialization and generalization. Explain with an example.	[5]	3	2
Q.2(b)	Explain three operations in Relation Algebra.	[5]	3	2
Q.3(a)	What is normalization? Describe Armstrong's axioms.	[5]	1	3
Q.3(b)	Why is 4NF preferred to BCNF?	[5]	3	2
Q.4(a)	How does a query tree represent a relational algebra expression?	[5]	2	3
Q.4(b)	What is query processing? Discuss basic query processing steps with a block diagram. Discuss basic selection operations using the index table.	[5]	4	2
Q.5(a)	What are transaction processing properties?	[5]	1	1
Q.5(b)	Draw a transition state diagram and discuss the typical states that a transaction goes through during execution.	[5]	3	2

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