

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

CLASS: BTECH
BRANCH: ECE/CE

SEMESTER : VII
SESSION : MO/2022

SUBJECT: CS301 DATABASE MANAGEMENT SYSTEM

TIME: 3:00 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 hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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|--------|---|-----|-----|-----|
| Q.1(a) | What is Purpose of the Database Management System.?Explain | [2] | CO1 | BL1 |
| Q.1(b) | Explain about the view of data and Database language? | [3] | CO1 | BL2 |
| Q.1(c) | Write the design process of E-R model? Create E-R diagram for students information system? | [5] | CO1 | BL6 |
| Q.2(a) | What are fundamental relational algebra operations? Explain with algebra notations? | [2] | CO2 | BL1 |
| Q.2(b) | Write the query for retrieve the name and address of all employees who work for 'research' department in relational algebra | [3] | CO2 | BL2 |
| Q.2(c) | How to modify the database? Explain with different statement SQL | [5] | CO2 | BL4 |
| Q.3(a) | Explain about the types of normalization? | [2] | CO3 | BL2 |
| Q.3(b) | Differentiate Functional dependency and multivalued dependencies? | [3] | CO3 | BL4 |
| Q.3(c) | Why is 5NF also called project join normal form and differentiate between BCNF and DKNF | [5] | CO3 | BL5 |
| Q.4(a) | Explain about the different indexing method and Hashing Method? | [2] | CO4 | BL2 |
| Q.4(b) | Differentiate between B+ Tree index files, B-Tree index files with suitable examples | [3] | CO4 | BL4 |
| Q.4(c) | Write about the Query Processing and Query optimization and measure the query sort merge algorithm cost formula approximates where (a*b) represents no. of block access for the sorting phase | [5] | CO4 | BL6 |
| Q.5(a) | What is Transaction and concurrency control concept? Explain | [2] | CO5 | BL1 |
| Q.5(b) | Explain about the ACID Properties and Transaction States | [3] | CO5 | BL2 |
| Q.5(c) | Why Concurrency and Recovery is needed? Explain about the lock -based protocols and multiple granularity level locking? | [5] | CO5 | BL5 |

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