

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

**CLASS: M.Tech  
BRANCH: CSE**

**SEMESTER : II  
SESSION : SP/22**

**SUBJECT: CS511 Advanced Database Management System**

**TIME: 2 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 a schedule? Define the concepts of recoverable and cascadeless schedule and compare them in terms of their recoverability. [5]
- Q.1(b) Differentiate between conflict equivalence and view equivalence? [5]
- Q.2(a) What is multiple granularity locking? How does it affect the performance of concurrency control? [5]
- Q.2(b) Discuss the problem of deadlock and the different approaches to dealing with deadlock. [5]
- Q.3(a) Describe the recovery techniques based on immediate update. [5]
- Q.3(b) Explain the following database recovery concepts - write-ahead logging, steal/No-steal, force/No-force. [5]
- Q.4(a) Discuss what is meant by the following terms : degree of local autonomy of a DDBMS, federated DBMS, replication transparency, distribution transparency and multidatabase system. [5]
- Q.4(b) What is a fragment of a relation? Explain the main types of a fragment. [5]
- Q.5(a) What is concurrency control? Why it is needed. Also discuss different types of failure. [5]
- Q.5(b) Discuss the immediate update recovery technique in multi-user environments. What are the advantages and disadvantages of immediate update ? [5]

:::29/04/2022:::