JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- Dec 2017

B.Tech IIIrd Semester

COURSE CODE: 10B11CI312   MAX. MARKS: 35

COURSE NAME: Database systems

COURSE CREDITS: 4   MAX. TIME: Two Hour

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1 Explain the difference between serializable, view serializable and conflict serializable schedule. Suppose there are three transactions T1, T2, T3 having 2,3,4 operations respectively then how many concurrent schedules are possible. [3+2]

Q2 For the following schedule check conflict serializability and view serializability: [3+3]

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S1: r1(X); r3(Y); r3(X); r2(Y); r2(Z);
    w3(Y); w2(Z); r1(Z); w1(X); w1(Z)
S2: r1(X); r3(Y); r2(Y); r3(X); r1(Z);
    r2(Z); w3(Y); w1(X); w2(Z); w1(Z)
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Q3 Execute the schedule given in Q2 using 2PL as well as basic time stamp protocol. [2+2]

Q4 Explain types of index and multi level indexing in detail. Also create a B tree or B+ tree of order 3 for the following inputs: 5,3,7,11,9,3,10,64,12,13 [3+3]

Q5 What are ACID properties? Explain usefulness of each. [4]

Q6 What are the advantages of Database system over file system. Explain in detail. [2]

Q7 Write the following queries in SQL and relational algebra for given schema: [1*4+1*4]

- Student(roll_no, name, branch, cgpa, address)
- Books(book_id, name, author, edition)
- Catalog(roll_no, book_id, issue_date)

1. Retrieve name of student who has at least 2 book issued.
2. Retrieve book detail for the book which has at least 4 editions.
3. Retrieve Student names from each branch who has maximum cgpa in their respected branch.
4. Retrieve Student names who has all book issued from the same author.