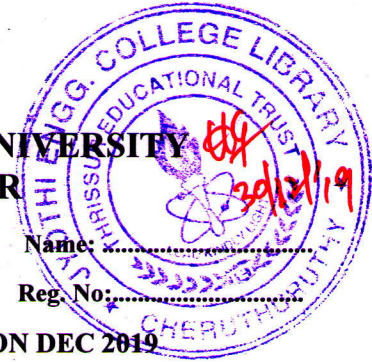


APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER



Q. P. Code : CS-1C-19-1

(Pages: 3)

Name:

Reg. No:

FIRST SEMESTER M.TECH. DEGREE EXAMINATION DEC 2019

Branch: Computer Science and Engineering Specialization: Computer Science and Engineering

COURSE CODE : 08 CS 6031 ADVANCED DATABASE TECHNOLOGY

Time:3 hours

Max.marks: 60

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

- | Q.no. | Module 1 | Marks |
|-------|--|-------|
| 1 | <p>a. Given a relational database R (Ssn, Ename, Pnumber, Pname, Plocation, Hours) which is decomposed in to three relations say:</p> <p>EMP(Ssn, Ename),</p> <p>PROJECT(Pnumber, Pname, Plocation),</p> <p>WORKS_ON(Ssn, Pnumber, Hours).</p> <p>Given the dependencies:</p> <p>$F = \{Ssn \rightarrow Ename; Pnumber \rightarrow \{Pname, Plocation\}; (Ssn, Pnumber) \rightarrow Hours\}$</p> <p>Determine whether the given relations, for the given dependencies satisfies non-additive (lossless) join property of decomposition.</p> | 3 |
| | <p style="text-align: center;">Answer b or c</p> | |
| b | What are the different heuristics in query optimization? Explain with example. | 6 |
| c | You are given the following set of functional dependencies for a relation R(A,B,C,D,E,F), Functional dependencies = {AB → C, DC → AE, E → F}. | |
| | a. What are the keys of this relation? | 2 |
| | b. Is this relation in BCNF? If not, explain why by showing one violation | 4 |

Module 2		Marks
Q.no.		
2.a	Differentiate data servers and transaction servers.	3
	Answer b or c	
b	With the help of an algorithm and example, explain how fragment and replicate join is performed during intraquery parallelism.	6
c	Explain various parallel database architectures. How the execution of data varies according to the use of different architectures?	6
Module 3		Marks
Q.no.		
3.a	Suggest any 3 applications where distributed database processing is used.	3
	Answer b or c	
b	What are the different methods for distributing data in a distributed database? Also suggest any two special operators used for transferring data across nodes in the same.	6
c	With neat diagram differentiate two-tier and three-tier client-server architectures.	6
Module 4		Marks
Q.no.		
4.a	What do you mean by XML DTD? Give example.	3
	Answer b or c	
b	Why XML is called semi-structured data? Write about the relevance of using XPath .What is the difference between single slash and double slash separators used in XPath?	6
c	Explain FLWR in XQuery. Write a XQuery to retrieve the first and last names of employees who earn more than 70000 from employee document.	6
Module 5		Marks
Q.no.		
5.a	Differentiate NoSQL and SQLdatabases.	4
	Answer b or c	
b	Explain key-value data store and column store with examples	8

c Give one example where graph database is used and explain the concept. 8

Q.no. **Module 6** **Marks**

6.a Explain the transaction commit protocols used in mobile database. 4

Answer b or c

b How log management is done in mobile database system? 8

c How location and hand off management is done in mobile database? 8