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	a.	Given a relational database R (Ssn,Ename,Pnumber,Pname,Plocation,Hours) which is decomposed in to three relations say: EMP(Ssn,Ename), PROJECT(Pnumber,Pname,Plocation), WORKS_ON(Ssn,Pnumber,Hours). Given the dependencies: F={Ssn->Ename; Pnumber->{Pname,Plocation};(Ssn,Pnumber}->Hours} Determine whether the given relations, for the given dependencies satisfies non-additive (lossless) join property of decomposition.	3
		Answer b or c	
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

Q.no.		Marks
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

Q.no.		Marks
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

Q.no.		Marks
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

Q.no.		Marks
5.a	Diffrentiate 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**