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B.TECH

BCSES3052-DATABASE MANAGEMENT SYSTEMS

(Regulations 2017) Common to AEIE / ECE/ BIOTECH/CHEMICAL ENGG.

Time: 3 Hours Maximum: 100 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) 10 x 2=20 Mark				
	Q.1. Answer <u>All</u> Questions.			
a	The data model which describes how the data is actually stored in a) Internal model b) External model c) Logical model d)None of these	[CO1] [PO1]		
b	One of the following is a valid record-based data model: a)Object oriented model b) Relational model c)Entity relationship model d)None of these	[CO2] [PO1]		
c	A top-to-bottom relationship among the items in a database is established by a : a) Hierarchal schema b)Network schema c)Relational schema d)All of the above	[CO1] [PO2]		
d	In a hierarchal database, hashing function is used to locate the: a) Root b)Collisions c) Primary key d) Duplicate records	[CO2] [PO2]		
e	Which of the following are properties of entities a) Groups b) Tables c) Attributes d) Switchboards	[CO3] [PO1]		
f	Object based data models are used in describing the abstraction of the following level a) Only physical b) Conceptual and view c) Physical and conceptual b) None of the above	[CO3] [PO1]		
g	An abstraction concept for building composite object from their component object is called a) Specialization b)Normalization c)Generalization d)Aggregation	[CO3] [PO2]		
h	A set of objects that share a common structure and a common behavior is called: a) Object b) Class c) Entity d) None of these	[CO4] [PO1]		
i	In which state, the transaction will wait for the final statement has to be executed a) Active b) Failed c) Aborted d) Partially committed	[CO4 [PO2]		
j	A view of database that appears to an application program is known as: a) Schema b) Subschema c) Virtual table d) None of the above	[CO4] [PO2]		
	PART – B: (Short Answer Questions) 10 x 2 = 20 Marks			
	Q.2. Answer <u>ALL</u> questions			
a	Illustrate any four applications of database in real life	[CO1] [PO1]		
b c	What is an instance and schema? List the factors to be considered in evaluating an index	[CO1] [PO2] [CO2] [PO2]		
d	Give syntax for creating an index in SQL	[CO2] [PO2]		
e	List steps in Query processing	[CO2] [PO1]		
f	Explain atomicity of a transaction	[CO3] [PO1]		
g	How is a transaction started and ended in SQL	[CO3] [PO2]		
h	Describe QBE	[CO3] [PO1]		
i	Differentiate strict two phase locking protocol and rigorous two phase locking protocol.	[CO4] [PO2]		
j	Why is concurrency control needed?	[CO4] [PO2]		



PART – C: (Long Answer Questions) 4 x 15=60 Marks

Answer <u>ALL</u> questions

a 1. Consider the following tables: Employee (Emp_no, Name, Emp_city) Company (Emp_no, Company_name, Salary) i. Write a SQL query to display Employee name and company name. ii. Write a SQL query to display employee name, employee city company mae and salary of all the employees working in 'XYZ' company. b Differentiate between SQL commands DROP TABLE and DROP VIEW. c Draw the architecture of database c Draw the architecture of database d Illustrate about database users and administrators d Illustrate about database users and administrators d Illustrate about database design(ER to Relational) with suitable example b Justify logical database design(ER to Relational) with suitable example c List and explain set operators of relational algebra. d Differentiate BCNF with 3 rd Normal form DR c List and explain set operators of relational algebra. d Differentiate BCNF with 3 rd Normal form DR c Explain how data retrieval, insertion and deletion are done using B tree and B+ tree indices b Analyze the need of dynamic hash function in DBMS CR c How hashing is used for file organization? Differentiate static hashing and dynamic hashing d Construct B tree and B+ tree to insert the following key values (order of tree is three) 32,111,15,13,7,22,15,44,67,4 Q.6 a Illustrate the principles of Dead lock avoidance and recovery in database transaction OR c Differentiate lock based protocols and timestamp based protocols Differentiate lock based protocols and timestamp based protocols Differentiate lock based protocols and timestamp based protocols Total [PO2]	Q.3	3		
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