Model Question Paper

Subject Code: CM 214 (R20)

R.V.R. & J.C. College of Engineering, Guntur – 522019

(Autonomous)

B.Tech. Semester-III [Second Year] Degree Examination(Regular)

Subject Name: Database Management Systems

Time: 3 hrs Max. Marks: 70

All Questions carry equal marks.
Answer Question No.1 compulsory (14 x 1 = 14 Marks)
Answer ONE Question from each unit (4 x 14 = 56 Marks)

		Answer ALL Questions	Marks	COs	Blooms Taxonomy Level
1.	(a)	Define Database and DBMS.	1	CO1	1
	(b)	List out the categories of data models.	1	CO1	4
	(c)	What are the components of storage manager?	1	CO1	1
	(d)	Define naive user.	1	CO1	1
	(e)	Assess the importance of primary Key in relations.	1	CO2	5
	(f)	Justify - Relational algebra is procedural query language.	1	CO2	5
	(g)	What is the purpose of GRANT and REVOKE in SQL?	1	CO2	1
	(h)	Discuss materialized view maintenance.	1	CO2	6
	(i)	Give the examples for simple & Composite attributes.	1	CO3	1
	(j)	Define 1NF	1	CO4	1
	(k)	Summarize the use of MVD in normal forms.	1	CO4	2
	(l)	Define transaction.	1	CO5	1
	(m)	How concurrent transactions are controlled in multi-version based protocols? Explain	1	CO5	2
	(n)	Compare log-based recovery with the shadow-copy scheme.	1	CO5	2

UNIT – I

2.	(a)	What are advantages of database systems? Discuss	7	CO1	1
	(b)	Explain with neat diagram three levels of data abstraction.	7	CO1	2
		(OR)			
3.	(a)	Discuss the methods used in designing relational databases along with example.	7	CO1	6
	(b)	Construct schema diagram for university database organization.	7	CO1	6

UNIT – II

4.	(a)	What are fundamental operations in relational algebra? Explain.	7	CO2	1
	(b)	What are various aggregate functions in SQL? Explain with suitable examples.	3	CO2	1
	(c)	Formulate various Join expression in SQL with examples.	4	CO2	6
		(OR)			
5.	(a)	Consider the following UNIVERSITY Schema and develop SQL DDL statements. (make any reasonable assumptions about data types, and be sure to declare primary and foreign keys)	7	CO2	6

		Department(dept name, building, budget) *Course(course id, title, dept name, credits)* *Instructor(ID, name, dept name, salary)* *Section(course id, sec id, semester, year, building, room number, time slot id)* *Teaches(ID, course id, sec id, semester, year)* *Student(ID, name, dept name, tot cred)* *Takes(ID, course id, sec id, semester, year, grade)* *Prereq(course id, prereq id)*			
	(b)	Consider the UNIVERSITY Schema given in 5.(a) and formulate SQL statements for the following queries. (a) Find the names of all instructors in the Computer Science department who have salary greater than 70,000 (b) Find the average salary of all instructors. (c) Find the total number of instructors who teach a course in the Spring 2010 semester (d)Retrieve the names of all instructors, along with their department names and department building name (e) WAQ to display prerequisite course ID, names for each Course. (g) WAQ to display courses offered by each department in descending order (h) WAQ to display department names for each instructor.	7	CO2	6

UNIT – III

6.	(a)	Discuss the E-R model for database design along with example.	7	CO3	6
	(b)	What are Weak entity Types? Explain	2	CO3	1
	(c)	Summarize the following constraints in E-R Model. (i) Cardinality constraints (ii) Participation constraints (iii) Keys	5	CO3	2
		(OR)			
7.	(a)	List out various Armstrong axioms with example FDs.	7	CO4	4
	(b)	Discuss with suitable example THIRD NORMAL FORM and BCNF	7	CO4	6

UNIT – IV

8.	(a)	With neat diagram explain state diagram of a transaction and discuss ACID properties of a transaction model.	7	CO5	2
	(b)	Write notes on the following. (i) Serializable schedules (ii) Recoverable schedules	7	CO5	1
		(OR)			
9.	(a)	Discuss Lock based protocols with example.	7	CO5	6
	(b)	Explain the purpose of the checkpoint mechanism. How often should checkpoints be performed?	7	CO5	2