Code: AC14/AT11 Subject: DATABASE MANAGEMENT SYSTEMS

AMIETE - CS/IT (OLD SCHEME)

Time: 3 Hours OCTOBER 2012 Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

• Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.

Q.1	Choose the correct or the best alternative in the following:					
	a.	a. A schema describes				
		(A) Record Relationship(C) Record and files	(B) Data Ele(D) All of the			
	b.	An abstraction concept for be component object is called		site objects from their		
		(A) specialization(C) generalization	(B) normali(D) aggrega			
c. Which of the following is not a valid		d aggregation function in SQL?				
		(A) avg(C) where	(B) min(D) sum			
	d. Which of the following is not a valid operation in the relational algebra?					
		(A) select(C) project	(B) min(D) rename			
	e.	4NF is designed to cope with				
		(A) transitive dependency(C) multi valued dependency	(B) join dep (D) none of	<u> </u>		
	f. Which one is lowest level data model?					
		(A) physical data model(C) external data model	(B) logical o(D) None of			
	g.	An alias is:				

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	h.	data type can store unstructured data		
		(A) RAW (C) CHAR	(B) VARCHAR (D) NUMERIC	
	i.	A table joined with itself is called		
		(A) Equi join(C) Outer join	(B) Self join(D) Join	
	j.	To delete a particular colu	umn in a relation, the command used is:	
		(A) UPDATE (C) ALTER	(B) DROP (D) DELETE	
		· ·	nestions out of EIGHT Questions. tion carries 16 marks.	
Q.2	a.	What is a database? Des DBMS.	cribe the advantages and disadvantages of using (6)	
	b.	relation model construct	nce between the E-R model construct and the Show by using a suitable example how each be mapped to the relational model? (10)	
Q.3.	a.	Consider the following relational schema: Doctor(DName, Reg_no) Patient(Pname, Disease), Assigned_To (Pname, Dname) For each of the following queries, give expression in both Tuple calculus and Domain calculus: (i) Get the names of patients who are assigned to more than one doctor. (ii) Get the names of doctors who are treating patients with 'Polio'. (10)		
	b.	(DATE, DRIVER, CAR_ Construct the following re (i) Find the names of pe	ADDRESS); N_NUMBER, YEAR, MODEL); ACCIDENT REG_NO); OWNS (SS#, LICENSE)	
Q.4	a.	•	integrity constraints? Explain 'Check constraint' aint' in SQL with an example for each. Give the	
	b.	Differentiate between DD	DL and DML by giving suitable examples. (4)	
	c.	Explain WHERE and HA	VING clause in SQL. Give suitable example. (4)	

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- Q.5 a. Describe entity integrity and referential integrity. Give an example of each. (6)
 - b. Consider the two relations given below

R			
A	В	C	
1	b1	c1	
Null a1	b2 b1	null c1	

D	A	F
d1	a1	f1
d1	a2	nulll

S

Given that A is the primary key of R, D is the primary key of S and there is a referential integrity between S.A and R.A, discuss all integrity constraints that are violated. (6)

- c. Difference between 1NF and 2NF. (4)
- **Q.6** a. What is the main goal of RAID technology? Describe RAID levels 1 through 5.
 - b. What is hash file organization? What are the causes of bucket overflow in a hash file organization? What can be done to reduce the occurrence of bucket overflow? (8)
- Q.7 a. Discuss the importance of sorting in a query processing. (6)
 - b. Differentiate between the following using a suitable example.
 - (i) Theta Join

(ii) Equi Join

(iii) Natural Join

(iv) Outer Join

- **(10)**
- Q.8 a. What are the ACID properties in DBMS? Explain each property in detail. (8)
 - b. Define the following terms:
 - (i) Primary key

- (ii) Super key
- (iii) Multivalued attribute
- (iv) Relationship instance
- (8)
- Q.9 a. Why is concurrency control needed? Discuss Timestamp ordering protocol for concurrency control. (8)
 - b. Write short notes on:
 - (i) Shadow Paging
 - (ii) Deadlock Handling

(4+4)