

UKA TARSADIA UNIVERSITY

BCA/Integrated M.Sc. (IT)/MCA (Integrated) (1st Semester)

Subject : 030010102/060010102/060060102-Database Management Systems (Theory) (2012-13)

Date : 04/01/2016

Duration : 3 Hours

Time: 10.00 AM to 1.00 PM

Max. Marks : 60.

Instructions:

1. Attempt all questions.
2. Write each section in a separate answer book.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks allocated to that question.
5. Draw diagrams/figures whenever necessary.

SECTION - 1

Q-1 (A) Answer the following. [04]

- I) Which is the fastest memory directly accessible by *CPU*?
- II) Which access method is used for *magnetic tape*?
- III) What does *durability* means?
- IV) Why does database system offer different level of *abstraction*?

Q-1 (B) Answer the following in brief. (Any 3) [06]

- I) Describe any four duties of *database administrator*.
- II) Why is a database considered to be "*self-describing*"?
- III) What is a *logical data model*?
- IV) State the role of *buffer manager*.

Q-2 Answer the following. [10]

- A) Construct an E-R Model for SuperStore that sells several house hold products to the public (such as milk and bread). Each product has several different manufacturers who manufacture it, and prices are different for products made by different manufacturers. Each time one or more products are sold to a customer, an invoice is created which lists the date, items purchased and their prices, and then the total purchase and tax amounts.

OR

- A) Construct an E-R Model for keeping track of your favourite sports team. You should store the matches played, the scores in each match, the players in each match, and individual statistics for each match. Summary statistics should be modeled as derived attributes.
- B) Explain two tier and three tier architecture for client server with a suitable example.

OR

- B) Draw and explain architecture of DBMS.

Q-3 Answer the following in detail. (Any 2) [10]

- A) Explain all three generations of database systems.
- B) How different users interacts with database systems?
- C) List any four different types of relationships. Explain any two with a suitable example.

SECTION - 2

Q-4 (A) Answer the following. [04]

- I) What is an *atomic* value?
- II) Define the term *partial dependency*.
- III) Give a point of difference between *CHAR* and *VARCHAR* data type.
- IV) What is *Cartesian Product*?

Q-4 (B) Answer the following in brief. (Any 3)**[06]**

- I) What is *normalization*? Write any one need of it.
- II) Write any two differences between *WHERE* and *HAVING* clause with an appropriate example.
- III) Define the term *Join* and give its types.
- IV) What is *sub query*? Give an example.

Q-5 Answer the following.**[10]**

- A) Identify whether the table is well structured or not and what could be possible anomalies in the given table? Justify your answer.

Staff_id	Dentist_name	Patient_id	Patient_name	Appointment_date	Surgery_no
S1110	Dr. Patel	P103	Ms. Saroj	12-Aug-2014	S11
S2144	Dr. Kumar	P102	Mr. Ram	22-Nov-2014	S42
S1110	Dr. Patel	P104	Mr. Mohan	18-Oct-2014	S14
S1101	Dr. Smith	P103	Ms. Saroj	15-Sep-2014	S13

OR

- A) An agency called InstantCover supplies part-time/temporary staff to hotels throughout Delhi. The table shows the time spent by agency staff working at two hotels. Explain how to remove the transitive dependency from the following table:

Staff_id	Contract_no	House_per_week	employee_name	Hotel_no	Hotel_location
S161	C1024	23	Mr. Kashyap	H25	Sector-18
S214	C1025	12	Mr. Rohan	H21	Sector-22
S910	C1051	14	Mr. Mohan	H25	Sector-18
S942	C1024	13	Ms. Sohan	H21	Sector-22

- B) Consider the following table:
 BOOKS(Book_id, Name, Author, Price, Publication)
1. Display all the book details which are belongs to "Willey" publication. [1 Mark]
 2. Display total amount of price of all the books. [2 Mark]
 3. Display book details which is not published by "Pearson" and having price more then 600 INR. [2 Mark]

OR

- B) Consider the following tables:
 EMPLOYEE(Emp_id, Name, City, Salary, Join_date, Dept_id)
 DEPARTMENT(Dept_id,Dept_name,Location)
1. List the employee details that are from "Finance" department. [1 Mark]
 2. Display average salary of employee. [2 Mark]
 3. Display employee name who are earning more then 30000 and do not belongs to "HR" department. [2 Mark]

Q-6 Answer the following in detail. (Any 2)**[10]**

- A) What is the use of *ORDER BY* clause ? Explain with an appropriate example.
- B) Explain any five string functions with a suitable example for each.
- C) Explain normal forms based on primary key and the corresponding normalization processes.