UKA TARSADIA UNIVERSITY

030010102 (2012-13) -060010102 (2012-13) -060060102 (2014-15)
Database Management Systems
BCA-Integrated M.Sc. (IT)-MCA (Integrated)

Date :07/05/2016 **Time :**10:30AM to 1:30PM
Duration : 3 Hours **Max. Marks:**60

Instructions :

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

SECTION - 1

Q : 1 (A) Answer the following. **[4]**

I) State the primary goal of DBMS.

II) Specify one point of difference between Volatile and Non-volatile memory.

III) List any two areas where database is widely used.

IV) Give one point of difference between weak and strong entity.

1 (B) Answer the following in brief. (Any 3) **[6]**

I) How records are being stored in Sequential file organization?

II) State the purpose of data dictionary.

III) Draw diagrams for two tier and three tier architecture.

IV) Give two major responsibilities of Database Administrator.

Q : 2 Answer the following. **[10]**

A) Consider an application for airline management system. The database must keep track of customers and their reservations, flights and their status, seat assignments on individual flights. Also it should store information about schedule containing source, destination, arrival time, departure time.
Draw an ER diagram that shows the entity types, attributes, relationships, and participation constraints for this application. State any assumptions you make.

OR

A) Construct an E-R diagram for hospital management system. The database must keep track of details regarding doctors, patients, visit detailsregarding patients in the hospital, and the billing process of the patients. Show multivalued and single valued attributes in it. Specify any assumptions made by you.

B) Design an enhanced E-R diagram for Library management system that implements the concept of generalization/specialization.

OR

B) Design a generalization – specialization hierarchy for banking system where a customer can have types of account like ‘saving’ or ‘current’. Identify two other entities and specify relationship appropriately.

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

A) List any four physical storage media. Classify them by their cost, storage space with which data can be accessed.

B) List DDL and DML commands. Explain any two DML commands with its use, syntax, description and example.

C) What is data abstraction? Briefly describe three levels of abstraction.

SECTION - 2

Q : 4 (A) Answer the following. **[4]**

I) How to assign primary key to student_id at table level in table Student(student_id, stud_name)?

II) Give an operator being used to access NULL.

III) Assume that records are stored in above table Student and consider the query 'select stud_name from student order by stud_name'. In what order the name of students will be displayed?

IV) Write a query to remove all records, if any, available in above table Student.

4 B) Answer the following in brief. (Any 3) **[6]**

I) What problems can occur through poor database design?

II) Apply constraint on above given table student that can restrict student_id from 1 to 60.

III) Give an example of a query uses pattern matching operators.

IV) Write the use of DISTINCT in an aggregate function.

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

A) Consider the relation Emp_Proj(Emp_ID, Emp_salary , Emp_designation, Project_no, Project_name, Completion_Date, Total_hour)
Given is the set of Functional Dependencies:
Emp_ID -> Emp_salary, Emp_designation
Project_no ->Project_name, CompletionDate
Emp_ID,Project_no -> Total_hour

1. Identify Primary key.
2. Identify whether the relation is in 2NF or not. If not then decompose it to 2NF. Give reason behind the decomposition

OR

A) Stud_Marks(student_id, student_name, student_address, subject_code, subject_name, score)
Given is the set of functional dependencies:
student_id -> student_name, student_address, subject_code, score
subject_code -> subject_name

1. State, in which normal form above relation Stud_Marks exist?
2. Derive Stud_Marks to 2nd normal form. State the reason behind the decomposition.

B) Consider below given tables Doctor and patient.
Doctor (Doc_id, Doc_name, Salary, Specialization)
Patient (Patient_id, Patient_name, City, Contact_no, Doc_id)
Write query for following:

1. Display name of patient whose Contact_no is '9879770001'.
2. Delete details of patients whose name starts with 'k'.
3. Display doctor name whose patient name is "Khyati".

OR

B) Consider above given tables Doctor and patient and write query for following:

1. Which doctors are having specialization 'Orthopedic'?
2. Display name of patient having treatment from doctor 'Aayansh'.
3. List all patients having names starting with character 'A' and lives in 'Surat'.

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

A) What is decomposition? Explain desirable property of decomposition.

B) List six data types available in DB2. Explain any four of them.

C) Explain subquery with suitable example. Write the use of IN, ANY and ALL with subquey with suitable example.