UKA TARSADIA UNIVERSITY

BCA/Integrated M.Sc. (IT) (Semester 1)
030010102(2012-13)/060010102(2012-13)
Database Management Systems

Date :11/05/2017 **Time :**1:30PM- 4:30PM
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) Consider that there is a set of indivisible values. What it is called in terms of relational model?

II) Why integrity problems arise in traditional file processing system?

III) Which problem may arise due to data redundancy in traditional file processing system?

IV) Which key specifies that two different tuples cannot have same value?

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

I) List out four roles of database administrator.

II) Assume that two user accessing same account from two different places using two different ATM debit card at the same time, What problem can occur with conventional file system?

III) In given relation find out composite attributes and derived attributes.
Student (STUDENTID, STUDENTNAME, CITY, STATE, PINCODE, BIRTHDATE)

IV) Which statement is used to change data in database? DML or DDL. List any two statements of the same.

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

A) Administrator of UKA TARSADIA University wants to store the records of students consist of fields namely Enrollment No., COURSE_NAME and Year. Data values of Enrollment No., Year is fixed. COURSE_NAME can have maximum 5 characters, but on an average the value for the COURSE_NAME can vary between 3 to 5 characters. Which type of record structure is best suitable in order to retrieve the data faster? Why? Also draw one sample record structure for the same.

OR

A) Administrator of UKA TARSADIA University wants to store the records of students consist of fields namely Enrollment No., Name and City. Data values of Enrollment No. is fixed, Name and City can have maximum 25 characters but on an average the value for the Name and City field is between 4 to 8 characters. Which type of record structure is best suitable for storing the data efficiently in order to make the less memory usage? Why? Also draw one sample record structure for the same.

B) Hospital has many doctors hired to treat the patient. Doctors are specialized as surgeon, dentist and neurologist. They treat for various kinds of diseases and perform various kinds of operations, if necessary and recommend medicine to patient. Draw extended ER diagram using specialization for given information.

OR

B) Design a generalization-specialization hierarchy for a motor vehicle sales company. The company sells motorcycles, passenger cars, vans, and buses. Justify your placement of attributes at each level of the hierarchy.

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

I) List any four physical storage media. Classify and compare them by their speed, storage space and characteristics with which data can be accessed.

II) What is data model? Explain any two data models.

III) Explain the three schema architecture in detail.

SECTION - 2

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

I) Which function is used to extract year from the date?

II) What is the purpose of HAVING clause?

III) What is the difference between char and varchar datatype?

IV) What happen if where condition is not specified in delete statement?

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

I) Consider table DOCTOR (Doctor_name, Address, Specialization).
Write a query to display name of doctors in descending order.

II) State two distinctions among primary key and candidate key.

III) Consider that attribute *gender* stores gender of students, varchar data type is taken to store it. What is the preferable size for attribute *gender*? Why?

IV) Is it possible to use average function on field which having varchar data type? If yes, how? If no, on what should be data type of field?

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

A) Product(P_Id, P_Name, Price, GodownId, GodownLocation, QuantityatGodown)

A product can be located in multiple godowns and a godown stored multiple products.
1. Identify and write primary key of above relation.
2. Above relation is in which normal form?
3. Convert above relation in next higher normal form.

OR

A) Project(Proj_Id, Proj_Name, Budget, Empid, Employee_Name, Speciality)
One or more employee can work in one or more project.
1. Identify and write primary key of above relation.
2. Above relation is in which normal form?
3. Convert above relation in next higher normal form.

B) Consider the following tables:
EMPLOYEE(Emp_d,Name,City,Salary,Join_date,Dept_id)
DEPARTMENT(Deptid,Dept_name,Location)
1. List the employee details that are from “Bardoli” and “Surat”.(Don’t use OR operator)
2. Display average salary of employee.
3. Display employee name having department id is ‘D005’.

OR

B) Consider the following tables.
Firm_Detail(Reg_No, Name, Description, City, Reg_Date, Reg_Charge)
Branch_Detaila(Id, Name, City, Reg_No)
Write DDL or DML statement for following questions.
i) Create above relations with appropriate datatype and constraints.
ii) Insert 2 records in both relations which satisfy referential integrity constraint.
iii) Delete 1 record from firm_detail which have reference in branch_detail relation.

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

I) What is decomposition of relation? Explain lossless join with suitable example.

II) What is sub query? Explain the use of sub query in DELETE statement with proper syntax and example.

III) List any four E. F. Codd’s Rules. Explain any two of them in detail.