UKA TARSADIA UNIVERSITY

Integrated M.Sc. (IT) (Semester 1)
060010110(2015-16)
CC2 Database Management Systems

Date :11/05/2017 **Time :**1:30PM- 4:30PM
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) What is primary key?

II) How data differs from information?

III) What is relationship set?

IV) How seek time and latency time differs from each other?

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

I) Write differences between sequential file and hashfile.

II) What is data dictionary?Write one usage of it.

III) What problems will arrive during fixed length records?

IV) What problem occured when we store record in hash file?

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

A) What is database abstraction? Enlist types of database abstraction and explain each in detail.

OR

A) What is cardinality? Enlist all possible cardinalities and explain each in detail.

B) Draw E-R diagram to fulfil below requirements.
Consider the following set of requirements for a UNIVERSITY
a. The university keeps track of each student's name, student number, Social Security number, current address and phone number, permanent address and phone number, birth date, sex, class (freshman, sophomore, ..., graduate),major department, minor department (if any), and degree(B.A., B.S., ..., Ph.D.). Some user applications need to refer to the city,state, and ZIP Code of the student's permanent address and to the student's last name. Both Social Security number and student number have unique values for each student.
b. Each department is described by a name, department code, office number, office phone number, and college. Both name and code have unique values for each department.
c. Each course has a course name, description, course number, number of semester hours, level, and offering department. The value of the course number is unique for each course.
d. Each section has an instructor, semester, year, course, and section number. The section number distinguishes sections of the same course that are taught during the same semester/year; its values are 1, 2, 3, ..., up to the number of sections taught during each semester. e. A grade report has a student, section, letter grade, and numeric grade (0,1, 2, 3, or 4)

OR

B) List and explain extended features of E-R diagram.

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

I) Explain magnetic disk and optical storage device in detail.

II) Explain sequential file organization.

III) Explain data redundancy and inconsistency with suitable example.

SECTION - 2

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

I) Define the term partial dependency.
II) What is updation anomaly?
III) Define DDL.
IV) Assume that at the time of creating table user gave wrong datatype to one field in a below table.
Employee(Name,Address,DepartmentName,Designation.)
Write a code to change the data type of column “Salary”.

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

I) Write the difference between Lossless and Lossyless.
II) What is physical data independence? Write one usage of it.
III) Write two key differences between trival and nontrival dependencies.
IV) Define strong and weak entity sets.

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

A) Consider the following database and write relational query:
Account(ACCOUNT_NO,BALANCE,BRANCH_NAME)
Branch(BRANCH_NAME,BRANCH_ADDRESS)

1. Find out all accounts which belong to branch named “Bardoli”.
2. Find out all accounts where balance is more than Rs. 10,000.
3. Find branch address for account having account number “171”.
4. Find out account number which belong to “Vyara” branch and whose balance is less than 5000.
5. Find out total balance of “Surat” branch.

OR

A) Consider the following database and write relational query:
Book_Mst(BOOK_ID, BOOK_TITLE, BOOK_AUTHOR,BOOK_PUBLISHER, UNIT_PRICE)
Book_Order(ORD_NO, CUST_NO, BOOK_ID, ORD_DATE,QTY_ORDER, QTY_DISP)

1. Delete all the book details which are not from “PEARSON”publisher.
2. Update UNIT_PRICE by increasing 10% for all the books.
3. Display all book details having BOOK_PUBLISHER is “PEARSON”.
4. Update QTY_ORDER to 15 for all the books ordered.
5. Update QTY_DISP to 12 having ORD_NO greater than 3.

B) Consider the following database and write relational query:
Customer_Mst(CUST_ID, CUST_NAME, CUST_CITY,CUST_PHONE)
Sales_Order_Dtl(SALES_ID, SALES_DATE, CUST_ID, PROD_ID,PROD_NAME, QUANTITY, RATE)

1. Display sales order detail with RATE is in between 5 to 50.
2. Display customer detail with CUST_CITY is “Bardoli”.
3. Display customer detail with their CUST_NAME starts with ‘P’.
4. Display customer detail with CUST_NAME starts with ‘C’ or CUST_ID is greater than
5. Display sales order detail with PROD_NAME is “DVD” and QUANTITY is greater than 15.

OR

B) Consider the following database and write relational query:
Product_Mst(PROD_ID, PROD_NAME, PROD_DESC, PROD_RATE)
Sales_Order_Dtl(SALES_ID, SALES_DATE, CUSTOMER_NAME, ORDER_CITY, PROD_ID, QUANTITY)

1. Display product details with PROD_RATE greater than 50.
2. Display sales order detail with ORDER_CITY is “Bardoli”.
3. Display product details with their PROD_NAME ends with ‘S’.
4. Display sales order detail with ORDER_CITY is “Bardoli” and QUANTITY is greater than 25.
5. Display sales order details which are placed in July 2014.

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

I) Explain Lossless join decomposition with suitable example.

II) Discuss deletion and modification anomalies with suitable examples.

III) Write following rule:

1. Information Rule
2. Guarantee Access Rule
3. Systematic treatment of null values
4. Dynamic online catalog based on the relational model
5. The comprehensive data sublanguage rule