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RM-6471

B. E. - II (Sem. IV) (CO/IT Engg.) Examination

May / June – 2010

Computer Based Information Processing

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. - 2 (Sem. 4) (CO/IT Engg.)**

Name of the Subject :

☛ **Computer Based Information Processing**

☛ Subject Code No. : **6 4 7 1** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Use separate answer sheet for each section.
(3) Make assumptions wherever required.
(4) Numbers on the right side indicate marks.

SECTION-I

1 (a) Do as directed : **10**

(1) Data abstraction hides certain details of how the data are stored and maintained. (T/F)

(2) Only one Unique key can be created for single table. (T/F)

(3) An entity set may not have sufficient attributes to form a primary key, that entity set is termed as strong entity set. (T/F)

(4) In E-R diagram, physical structure of the database can be expressed graphically. (T/F)

(5) Records can be retrieved in ascending/descending order using order by clause. (T/F)

(6) _____ provides an environment where data are stored and retrieved efficiently.

(7) In SQL query, to eliminate duplicate values _____, keyword is used select clause.

(8) _____ command is used to modify the structure of the table.

(9) _____ interprets DDL statements and records the definitions in the data dictionary.

(10) _____ character matches any substring in a given string.

(b) Answer the following : **10**

(1) Define E-R diagram. Explain Attributes of E-R diagram and design an E-R diagram for "Library Management System".

Library Management System is used to keep track master details like all types of Books, Student, Staff, Issue and Return Book, Supplier. Each book has a unique book id and book title, stock of book, author etc. Other entities having their own attributes like book.

This system also maintains daily transaction information like issue of book to either student or staff or return of book by student or staff. Actions can be taken against late return of the book. Using this system, order can be placed, if enough stock of books is not available.

2 Answer the following : **15**

(1) Describe Aggregate Functions with example. **5**

OR

(1) Discuss various types of joins with the help of proper illustration. **5**

(2) A company maintaining Payroll System. Following schemas are designed for this system. **10**

Employee (Ecno_Ename, Address, City, Phoneno, Department, Designation, Date_of_join)
Attendance (Ecno, Att_date, Present, Leave_type)
Salary (Ecno, Month, Year, TotalSalary)
Leave (Ecno, Month, Year, Leave_type, No_of_leave).
Write SQL Statement/Query for following problems : (any five)

(1) List Ecno,Ename,Department and designation whose designation is manager and department is computer.

(2) List employee Details whose TotalSalary is between 20000 and 30000 in the month of 2 and Year 2008,

(3) List Employee Details department wise whose TotalSalary is maximum.

(4) List Employee Details who have joined the company in the month of February.
(5) Calculate total number for Casual leave for employee of "Computer" for the month of January and Year of 2008.
(6) List employee who are not present on "12-01-08' date.

3 Answer the following : **15**

(1) Draw system structure of Database System. Explain Database System Components. **8**

(2) Describe Single Valued and Multi Valued Attributes with example. **5**

OR

Define Data Independence. Discuss types of Data Independence. **5**

(3) Define Data Model. List Data Models. **2**

OR

Define Data Schema. List types of Data Schema. **2**

SECTION-II

4 (a) Answer the following : **10**

(1) Define : Sparse Index.
(2) A block multiplexor channel interleaves the data flow to multiple devices. (T/F)
(3) Number of records per block is known as _____.
(4) SPOOL stands for _____.
(5) What kind of information is stored in file system's directories ?
(6) Define : Hit Ratio.
(7) _____ is the number of transactions processed in a time period.
(8) Define : Demand Buffering.
(9) The time required for the read/write heads of a disk to be positioned at the appropriate cylinder is known as _____.
(10) Polyphase merge is one type of balanced merge. (T/F)

(b) Attempt following questions : **10**

(1) What are the typical responsibilities of a file system ?

(2) List Addressing Techniques. Explain any one.

5 Answer the following : **15**

(a) Consider a magnetic tape with 1600 bpi and 0.6 inch interblock gap. Assume that 80 byte records are to be stored on a 2400 foot tape. **8**

(1) How many records could be stored on the tape if a blocking factor of 5 records per block were used ?

(2) How many records could be stored on the tape if a blocking factor of 15 records per block were used ?

OR

Explain the sequence of events in processing a file READ operation using channel activities. Differentiate between database system and file system. **8**

(b) Discuss B^+ –tree with example. **7**

OR

Draw the flow chart for logic of updating sequential master file. **7**

6 Answer the following : (any **three**) **15**

(1) Explain linear probing and Double Hashing

(2) Write consumer and producer routines for anticipatory buffering

(3) Explain File Designing Concept

(4) Explain Balanced Merge

(5) Explain Tries.