



SF-6471

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

May / June - 2011

Computer Based Information Processing

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दर्शाविए निशानीवाणी विगतो उत्तरवडी पर अवश्य कभवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="B. E. 2 (Sem. 6) (CO / IT)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="Computer Based Information Processing"/>	<input type="text"/>
Subject Code No. : <input type="text" value="6"/> <input type="text" value="4"/> <input type="text" value="7"/> <input type="text" value="1"/>	<input type="text"/>
Section No. (1, 2,.....) : <input type="text" value="1&2"/>	<input type="text"/>
	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
- (i) An entity set may not have sufficient attributes to form a primary key, that entity set is termed as weak entity set. (T/F) 1
- (ii) Data Abstraction contains _____, _____ and _____ levels. 1
- (iii) Define following : (any four) 8
- (a) Foreign Key
(b) Primary Key
(c) Composite Attribute
(d) Data Model
(e) Data Definition Language (DLL)
(f) Data Manipulation Language (DML)
- (b) Answer the following : 10
- (i) Define E-R Diagram. Explain attributes of E-R diagram and construct an E-R diagram for 'Register's Office at University'. Mention all assumptions that you make about the mapping constraints.
A university registrar's office maintains data about the following entities :

- (a) Courses which include course number, title, credits, syllabus and prerequisites.
- (b) Course offering include course number, year, semester, section number and instructors, timing and classroom.
- (c) Students include student-id, student name and program
- (d) Instructors include identification number, name, department and title.

Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriate modeled.

- 2** Answer the following : **15**
- (i) Discuss various types of joins with the help of proper illustration. **5**

OR

- (i) Differentiate following : **5**
 - (a) Single Valued with Multivalued Attributes.
 - (b) Physical Schema and Logical Schema
- (ii) Consider the following insurance database, where primary keys are underlined. **10**

person (driver_id, name, address)

car (license, model, year)

accident (report_no, adapt, location)

owns (driver_id, license)

participated (driver_id, car, report_no, damage, amount)

Construct any five SQL queries for following relational database.

 - (i) Add a new accident to the database.
 - (ii) Delete the Honda City car details belonging to Rahul Patel.
 - (iii) Find the number of accidents in which car belonging to "Sheetal Shah".
 - (iv) Find the total number of people who owned cars that were involved in accidents in year 2011.
 - (v) List car of model "Wagon R" of 2009 year.
 - (vi) List person whose name is "Priti Patel" and driver id is 111.

- 3** Answer the following : **15**
- (i) Discuss role of various kinds of Database Users and Database Administrator. **8**
 - (ii) Discuss aggregate functions with syntax and suitable examples. **5**
- OR**
- (ii) Discuss Set operations and Set membership with suitable example. **5**
 - (iii) Differentiate DBMS and RDBMS. **2**
- OR**
- (iii) Discuss aggregation. **2**
- 4** (a) Answer the following : **10**
- (i) A _____ Channel can manage data flow between main memory and several devices.
 - (ii) Relative files are used commonly in interactive processing. State true or false.
 - (iii) Define : Seek Time.
 - (iv) A _____ file contains data that are formatted for presentation to a user.
 - (v) Define : Load Factor.
 - (vi) Which of the following activities makes the greatest contribution to the access time of a block on a movable-head disk ?
 - (a) head activation
 - (b) cylinder selection
 - (c) rotational delay
 - (vii) A Trie is a search tree of order m. State true or false.
 - (viii) M-way balanced merge will require _____ merge phases.
 - (ix) Support of virtual I/O devices also known as _____.
 - (x) Define : Virtual Hashing.
- (b) Attempt following questions : **10**
- (i) Describe the sequence of events in processing a file READ operation using channel activities.
 - (ii) Discuss the concept of bucket addressing.
- 5** (a) Consider a magnetic tape with 6250 bpi and 0.6 inch interblock gap. Assume that 100 character records per block is stored on a 2400 foot tape. **8**
- (i) How many records could be stored on the tape if a blocking factor of 1 records per block were used ?

- (ii) How many records could be stored on the tape if a blocking factor of 20 records per block were used ?
- (b) Discuss the logic for deleting a key from B-tree. **7**

OR

- 5** (a) Explain Linear probing and double hashing and also compare them. **8**
- (b) Draw the flow chart for logic of updating sequential master file. **7**
- 6** Answer the following : (any **three**) **15**
- (i) What are the typical responsibilities of a file system ?
- (ii) Explain Natural merge with example.
- (iii) Describe the major difference between a file system and a database management system.
- (iv) List addressing techniques. Explain any one of them.
- (v) Explain B⁺ -tree structure.
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