

Seat No.	
----------	--

B.E. (Computer Science & Engineering) (Semester-VII)
(Revised) Examination, May - 2017
ADVANCED DATABASE SYSTEMS
Sub. Code : 67543

Day and Date : Wednesday, 17-05-2017

Total Marks : 100

Time : 2.00 p.m. to 5.00 p.m.

- Instructions :
- 1) Attempt any three questions from each section.
 - 2) Figures to the right indicate full marks.
 - 3) Assume suitable data wherever necessary.

SECTION-I

- Q1)** a) With the help of a necessary figure, explain the front-end and the back-end functionality of a database in a client-server system. [8]
 b) What are parallel systems? Explain speedup and scaleup in such systems with the help of a graph for each one. [8]
- Q2)** a) What do you mean by transient object and persistent object? Explain the concept of Naming and Reachability for making the object persistent. [8]
 b) What is intraquery parallelism? Explain Range-Partitioning sort algorithm. [8]
- Q3)** a) What is Dynamic SQL? State its advantage and disadvantages? [4]
 b) Define the terms procedure and function. Give an example of each. [4]
 c) With the help of an appropriate figure, explain the database design process in detail. [8]
- Q4)** Write short notes on any three: [6+6+6]
 a) Fragmentation
 b) ODL
 c) Simple join processing
 d) Centralized versus decentralized design.

P.T.O.

SECTION-II

- Q5) a)** Explain the intuition behind the two rules in the Bell-LaPadula model for mandatory access control. [8]
- b) Give an example of how covert channels can be used to defeat the Bell-LaPadula model. [4]
- c) What is the role of the DBA with respect to security? [4]

- Q6) a)** Write queries in X Query on the bibliography DTD fragment in following Figure to do the following. [9]

i) Find all authors who have authored a book and an article in the same year.

ii) Display books and articles sorted by year.

iii) Display books with more than one author.

<!DOCTYPE bibliography [

<!ELEMENT book (title, author+, year, publisher, place?)>

<!ELEMENT article (title, author+, journal, year, number, volume, pages?)>

<!ELEMENT author (last-name, first-name)>

<!ELEMENT title (#PCDATA)>

... similar PCDATA declarations for year, publisher, place, journal, year, number, volume, pages, last-name and first-name

- b) Give the DTD for an XML representation of the following nested-relational schema. [7]

Emp = (ename, ChildrenSet setof (Children), SkillsSet setof (Skills))

Children = (name, Birthday)

Birthday = (day, month, year)

Skills = (type, ExamsSet setof (Exams))

Exams = (year, city)

- Q7)** a) What is data warehouse and what are its main characteristics? Explain ETL process? [8]
- b) What is OLAP? Explain the following operations with example. [8]
- i) Roll-up.
 - ii) Drill-down.
 - iii) Slice and Dice.
 - iv) Pivoting.

Q8) Write short notes on any three: [6+6+6]

- a) Discretionary access control mechanism.
- b) Xml schema.
- c) Clustering.
- d) Business intelligence framework.

