

**BACHELOR OF COMPUTER APPLICATIONS  
(BCA) (Pre-Revised)**

**Term-End Examination**

00056

**June, 2016**

**CS-06 : DATABASE MANAGEMENT SYSTEMS**

*Time : 3 hours*

*Maximum Marks : 75*

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**Note :** *Question number 1 is compulsory. Attempt any three questions from the rest.*

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1. (a) An online book database maintains the details such as ISBN, title, price, year of publishing, number of pages, author, publisher of various textbooks, language books and novels. The user can view the details of various authors and publishers. The database also maintains the details of the ratings and feedbacks of other authors about a particular book. The ratings of the book are displayed along with other details of the book. Design an ERD for the Online Book Database. Assume suitable attributes for the entities and mark the key attribute in the ERD.

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- (b) What are distributed databases ? Describe the structure of distributed databases. Describe the issues related to storing a relation in the distributed database. 10
- (c) Write short notes on the following : 10
- (i) Functional Dependency (FD)
  - (ii) Multivalued Dependency (MVD)
  - (iii) Remote Procedure Call (RPC)
  - (iv) Object Oriented System (OOS)
  - (v) Object Linking and Embedding (OLE)
2. (a) What is a Knowledge Base System ? Describe the four types of Knowledge Representation Schemes. 10
- (b) What are the five main differences between a file processing system and a DBMS ? 5
3. (a) Consider the two sets of FDs for the relation R (A, B, C, D, E).
- (i)  $A \rightarrow B, AB \rightarrow C, D \rightarrow AC, D \rightarrow E$
  - (ii)  $A \rightarrow BC, D \rightarrow AE$
- Are they equivalent ? Justify your answer. 5

- (b) Design Semantic Net Representation for the following facts : 5

“Elephants are mammals. They are large in size and have a long trunk. Their ears are large. Elephants like bananas. Appu is an elephant but Appu likes apples.”

- (c) Describe the three-layer architecture of DBMS. 5

4. (a) Define 3NF and BCNF with examples. 6

- (b) Consider the following relational schema :

Courses (Cno, Cname)

Students (Rollno, Sname, Age, Year)

Registered for (Cno, Rollno)

Write the SQL Queries for

- (i) Find the age and year of the youngest student in each year.
- (ii) Display the list of students course-wise.
- (iii) Display the list of students not registered for any course. 9

5. (a) Describe Client-Server Architecture and its advantages. 6
- (b) What are Keys ? Differentiate between Candidate, Primary and Foreign keys with the help of suitable examples. 4
- (c) What is ISAM ? How is overflow of records handled in ISAM ? 5
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