0655

CS-06

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

Term-End Examination, 2019

CS-06 : DATABASE MANAGEMENTSYSTEMS

Time : 3 Hours]   [Maximum Marks: 75

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

1.   (a)   Draw an ER diagram for the following situation : Library consists of many books in different subject areas where books are written by different authors and are published by different publishers. A book is published by only one publisher. There are inside members and outside members who get books issued for their uses. The issuing and return operation of the books are managed by the librarian.   [8]

     (b)   What are the issues associated with knowledge representation?   [5]

(c)   What is the need of indexing in DBMS ? Explain the significance of primary Index with the help of an example.   [5]

(d)   Consider the following relation schema :   [12]

STUDENT (Name, Roll-No, Teacher-ID, Program, Semester, Subject)

DEPARTMENT (Dep-ID, Program, Teacher-ID)

TEACHER (Teacher- ID, Dep- ID, Name, Subject)

Write following queries in SQL :

(i)   List name of all teachers who belong to Dep-ID = '4' and take 'Graph theory' subject.

(ii)   List names of students who study in semester-II of BCA program and are taught by Teacher- ID = '1'.

(iii)   Find name of all teachers who teach the student with Roll No = '101'

(iv) Find name of all students who are in 1st semester of MCA program and are taught by Prof. Ajay.

2. (a) How object oriented technology differs from structured programming ? [8]

(b) Explain the three level architecture of DBMS with the help of a diagram. [7]

3. (a) Differentiate between BCNF and 3NF. Why BCNF is considered as a stronger norm form than 3NF?

[6]

(b) Explain the following operators in Relational Algebra with examples :

(i) SELECT

(ii) PROJECT

(iii) JOIN [9]

4. (a) What are the advantages and disadvantages of database management system ? Explain the roles of a DBA. [9]

(b) · What are the additional functions that a distributed DBMS has over centralized DBMS ? [6]

5. (a) What are the advantages of using B tree as a structure for creating index ? [8]

(b) Discuss the trade-offs between mainframe and client/ server environment. [7]

----- X -----