

- (b) Write down the characteristics of the database systems. 5

**Section B**

5. (a) What do you mean by Integrity Constraints ? Explain with suitable example. 8
- (b) Consider the following relations :
- S (S#, SNAME, STATUS, CITY)  
SP (S#, P#, OTY)  
P (P#, PNAME, COLOR, WEIGHT, CITY)
- Give an expression in SQL for each of queries below :
- (i) Get supplier names for supplier who supply at least one red part.
- (ii) Get supplier names for supplier who do not supply part P2. 8
- (c) Consider the following relations schemas :
- EMPLOYEE (EMPLOYEE NAME,

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4

No. of Printed Pages : 05

Roll No. ....

**E-162**

**B. C. A. EXAMINATION, May 2017**

(Fifth Semester)

(Old Scheme) (Re-appear Only)

(BCA)

BCA-303

DATABASE MANAGEMENT SYSTEMS

*Time : 3 Hours*

*[Maximum Marks : 100*

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Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

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**Note :** Q. No. 1 is compulsory. Attempt any *Four* questions from Sections A, B and C by selecting at least *one* question from each Section.

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P.T.O.

1. (i) Briefly explain relational model.
- (ii) What do you mean by Strong Entity ?
- (iii) Define data manipulation language.
- (iv) Define foreign key.
- (v) Distinguish between entity set and entity instance.
- (vi) What do you mean by Atomicity ?
- (vii) Define primary keys.
- (viii) Define shadow paging.
- (ix) What do you mean by relationship set ?
- (x) What do you mean by generalization ?  
Explain. **2×10=20**

### Section A

2. (a) Differentiate between conventional file processing system and RDBMS. **10**
- (b) What do you mean by Database Management System ? Differentiate between generalization and specialization. **10**

3. What do you mean by the term Data Models ?  
Explain different data model in detail. **20**
4. (a) A University Registrar's office maintains data about the following entities : **15**
  - (1) Courses, including number, title, credits, syllabus, and prerequisites.
  - (2) Course offerings, including course number, year, semester, section number, instructor, timings and classroom.
  - (3) Students, including student-id, name and program
  - (4) Instructors, including identification number, name, department and title. Further, the enrollment of students in course and grades awarded to students in each course they are enrolled for must be appropriately modeled. construct an E-R diagram for the registrar's office. Document all assumptions that you make about the mapping constraints.

STREET, CITY) WORKS (EMPLOYEE,  
NAME, COMPANYNAME, SALARY  
COMPANY (COMPANY\_NAME, CITY)  
Specify the table definitions in SQL. 4

6. What do you mean by Functional Dependencies ? Explain 2NF, 3NF and BCNF with suitable examples. 20

**Section C**

7. (a) What do you mean by a Transaction ? Explain its properties. 10  
(b) What do you mean by ACID properties ? Explain. 10
8. (a) Explain, how time stamp based protocols are useful in handling concurrency. 10  
(b) Write the concept of Log-based recovery. 10

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