

END SEMESTER EXAMINATION, JUNE - 2019
BCA FOURTH SEMESTER

COURSE CODE: BCA207**COURSE TITLE: DATABASE MANAGEMENT SYSTEMS****[Time allotted: Three hours]****[Max. Marks: 100]***Note: Attempt all Sections.*

Section (A)

Q.1. Attempt all questions.**(2 x 10 = 20)**

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| <p>a. Why do we need normalization?</p> <p>b. Explain the term data integrity.</p> <p>c. What is deadlock? Write its conditions.</p> <p>d. What is data redundancy?</p> <p>e. What is lock in transaction?</p> <p>f. Explain the importance of key in DBMS.</p> <p>g. Discuss the importance of concurrency control.</p> | <p>h. Differentiate between ALTER and UPDATE command.</p> <p>i. Entity which does not have any primary key is known as _____.</p> <p>j. Differentiate between data definition language and data manipulation language.</p> |
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Section (B)

Q.2. Attempt any 5 questions.**(7 x 5 = 35)**

- a. Draw an ER diagram for a garment manufacturing company. The entities include warehouses, production units, marketing wing, vendor and product types. Define the relationships between each of these entities. Take the attribute so that they can define the entity properly.
- b. Draw and explain with diagram the DBMS architecture.
- c. What do you mean by domain constraints? Explain its types.
- d. What is a view? What are its advantages? Explain the syntax of creating views.
- e. Explain the SQL construction for Selection, projection and joins.
- f. What is functional dependency? Create a relational schema R(A,B,C,D) with primary keys AB such that R is in 2NF but not in 3NF. Show explicitly why it is in 2NF but not in 3NF.
- g. List the ACID properties. Explain usefulness of each.

Section (C)

Attempt any 3 questions.**(15 x****3 = 45)**

Q.3. a. What are unions? When two tables are said to be union compatible? How are the results ordered in union compatible? (7.5)

b. Consider the following relations and write the queries in relational algebra: (7.5)

Supplier(sno, sname, status, city)

Parts(pno, pname, color, weight, city)

Project(Jno, jname, city)

SPJ(sno, pno, Jno, qty)

- (i) Get the Sname values for suppliers who supply project J1.
- (ii) Get the Sno values for suppliers who supply project J1 with part P1.
- (iii) Get Jname values for projects supplied by the supplier s1.
- (iv) Find the total number of projects supplied by S1.
- (v) Find the red color parts supplied by S1.

Q.4. a. What are the various characteristics of SQL? Discuss five aggregate functions with a suitable example. (7.5)

b. Explain with the example the following SQL commands.

(7.5)

- (i) CREATE-both view and table

- (ii) ALTER- both add and drop
- (iii) SELECT-group by, having

- Q.5.** **a.** List and discuss the six inference rules for functional dependencies. Give relevant examples. (7.5)
 b. Define normalization? What are the advantages of normalized relations over the un-normalized relations? (7.5)
- Q.6.** **a.** Define a functional dependency with example. (7.5)
 b. How does SQL allow implementation of the entity integrity and referential integrity constraints of the relational data mode? Explain with an example. (7.5)
- Q.7.** **a.** What is concurrency in transaction? Explain with the help of example. How is it controlled? (7.5)
 b. Discuss various applications of DBMS and list their data management issues. (7.5)
