# Paper Code : 21317
## F–417

## B. C. A. (Fourth Semester) EXAMINATION, 2019
### (New Course)

Paper No. BCA—N—402

INTRODUCTION TO DBMS AND SQL

*Time : Three Hours* ] [ *Maximum Marks : 70*

**Note :** Attempt any *five* questions. All questions carry equal marks.

1. (a) How many types of data model are for DBMS ? Explain the network model and Hierarchical Model with an example. 7

   (b) Draw system architecture of DBMS. List any *four* significant differences between a life-processing system and a DBMS. 7

2. (a) What is the need of relational model ? Differentiate the relational and non-relational model with example. 7

   (b) Write SQL command to Get Supplier Names for Suppliers who supply all Parts. Using the following tables : 7







SUPPLIER [S_NO {CHAR(2)primary key}, SPNAME {CHAR (5)}, CITY {CHAR (8)}

PARTS [P_NO {CHAR(2) primary_key}, PNAME {CHARS(5)}, COLOR {CHAR(5)], CITY {CHAR (8)}].

SUP_PARTS [{S_NO CHAR (2), P_NO CHAR (2)} primary_key, QTY NUMBER]

[Where-S_NO:- Supplier number, SNAME:- Supplier Name, P_NO:- Parts Number, PNAME:- Parts Name]

3. (a) What is need of the normalization ? Consider the following universal relation : 7

   $R = \{A, B, C, D, E, F, G, H, I, J\}$ and the set of functional dependencies :

   $R = \{AB \rightarrow C, A \rightarrow D, B \rightarrow F, F \rightarrow GH, D \rightarrow IJ\}$

   What is the key for R ? Decompose R into 2NF and then 3NF.

   (b) What do you mean by functional dependency ? Describe their applications, what is MVD and join dependency ? 7

4. (a) What is database system ? Explain the elements of database system. 7

   (b) What is the difference between a Database and DBMS ? Explain with example. 7

5. (a) Describe the following : 7

   (i) Data query, manipulation and reporting

   (ii) Concurrent data access for multiple users

   (b) Compare physical and logical models of data. 7

6. Consider the following relation : 14

Student (Rollno, Name, Subject, Marks)

Write the SQL of the following :

(i) Name of students who have secured the highest marks in the class.

(ii) Name of students who have secured the highest marks in each subject.

(iii) Sort the students in ascending order of their names.

7. (a) What are data models ? Explain advantages and disadvantages of data models. 7

(b) Compare different types of data models. 7

8. (a) What do you mean by integrity constraints ? Explain. 7

(b) Explain Normalisation. Describe 1NF and 2NF and 3NF with example. 7