Sem 3 – DBMS
(Dec_2017)

# P142/P131/CMP509/EE/20180117

**Time : 3 Hours** **Marks : 80**

**Instructions :**

1. All Questions are Compulsory.
2. Each Sub-question carry 5 marks.
3. Each Sub-question should be answered between 75 to 100 words. Write every questions answer on separate page.
4. Question paper of 80 Marks, it will be converted in to your programme structure marks.

1. Solve any **four** sub-questions.

a) Explain what is data and information with example? 5

b) What are joins? List down the types of joins. 5

c) Consider 'Courier Services System'. In which Administrator is person who handles administrations of system. Administrator is person who is actually owner of Courier Services shop. Client is person who courier the documents or things. Workers are person who works in courier office to handle enquiry, dispatching process of courier's etc. Payment_Mode option is available for Client. Client can do Payments by using different Payment modes.
Draw ER diagram for Courier Service System. 5

d) Explain transaction states by giving an example. 5

e) What is Normalization? Why we need normalization? 5

2. Solve any **four** sub-questions.

a) What is Database? What are three advantages of DBMS? 5

b) What is a data model? Explain any two types of data models. 5

c) What is a Functional dependency? 5

d) Explain the concept of Super Key, Candidate Key and Primary Key with examples. 5

e) Determine functional dependency in Mark sheet table given below: 5

| Roll No. | Subject Code | Marks |
|---|---|---|
| 101 | C110 | 82 |
| 101 | C112 | 45 |
| 102 | C122 | 65 |
| 103 | C123 | 70 |

3. Solve any **four** sub-questions.

a) Explain structure of DBMS. 5

b) What is a week entity and strong entity by giving an example each? 5

c) Explain ACID properties with the example. 5

d) A relation NADDR is defined as follows. 5

NADDR = (name, street, city, state, postal_code)

where name is unique, and for any given postal code, there is just one city and state

i) Give a set of FDs for this relation.

ii) What are the candidate keys?

iii) Is NADDR in 3NF or 2NF? Explain why?

iv) If NADDR is not in 3NF, normalize it into 3NF relations.

e) What is SQL? Also List down the DDL and DML commands. 5

4. Solve any **four** sub-questions.

a) What are different types of user that play different roles in a database environment? 5

b) What is an attribute? Explain any two types of attributes. 5

c) Explain two phase locking protocol? 5

d) What is De-Normalization? 5

e) Determine the functional dependencies. Remove partial dependency and transitive dependencies in given table. (i.e. convert it into 3NF). Student = (RollNo, Name, Course_Code, Course_Name, Fees) 5

| Roll No. | Name | Course_Code | Course Name | Fees |
|---|---|---|---|---|
| 123 | Ravi | C102 | C | 2500 |
| 123 | Ravi | C103 | C++ | 1200 |
| 123 | Ravi | C104 | OOPs | 3200 |
| 124 | Sumit | C102 | C | 2500 |
| 124 | Sumit | C103 | C++ | 1200 |
| 125 | Trupta | C102 | C | 2500 |
| 125 | Trupta | C103 | C++ | 1200 |
| 125 | Trupta | C104 | OOPs | 3200 |

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