Hall Ticket Number:

Code No. : 14109 IDMS

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (CBCS) IV-Semester Main Examinations, May-2018

Introduction to Database Management Systems

(Open Elective-III)

Time: **3** hours Max. Marks: **70**

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2 = 20 Marks)

1. List applications of Database system.
2. Differentiate between single valued and multi valued attributes?
3. Define the terms instance and schema.
4. Write the usage of 'Order by' and 'Group by' clauses available in SQL.
5. Given R(ABCDEF) and the set of FDs on R given by F={C→ F, E→ A, A→ B, EC→ D}. What are the candidate keys of R?
6. Define prime attribute and Non-prime attribute.
7. Write about Transaction model.
8. What are the problems and causes of transaction failures?
9. What are the responsibilities of DBA?
10. Define the terms Trivial and Non trivial functional dependency.

Part-B (5 × 10 = 50 Marks)

11. a) Draw a neat Sketch of Database System Architecture and explain about each component. [6]

    b) Distinguish between File system and DBMS. [4]

12. a) Apply any four SQL Aggregate functions on 'salary' for the table given below and print the result. [5]

Emp_id	Name	Salary
1001	Annie	6000
1009	Ross	4500
1018	Zeith	7000
1019	sharun	8500

    b) Discuss briefly about Integrity constraints? [5]

13. a) Illustrate 1NF and 2NF with an example. [5]

    b) Describe the process for finding if a decomposition is dependency preserving and lossless. [5]

14. a) Draw pictorial representation of transaction states and explain each state. [6]

    b) Write in detail about ACID properties in transaction. [4]

Contd... 2

15. a) Consider two relations PEOPLE , MENU and print results for the queries given below. [6]

PEOPLE:

Name	Age	Food
Alice	21	Hamburger
Bill	24	Pizza
Carl	23	Sandwich
Dina	19	Shrimp

MENU:

Food	Day
Pizza	Monday
Hamburger	Tuesday
Chicken	Wednesday
Pasta	Thursday
Tacos	Friday

i) PEOPLE $\bowtie_{\text{people.food = menu.food}}$ MENU

ii) PEOPLE $\bowtie_{\text{people.food = menu.food}}$ MENU

b) Write a query to create a table 'PEOPLE' and insert values in to the table using SQL commands (use same values from above table). [4]

16. a) Differentiate between 3NF and BCNF with an example. [5]

b) Given the set of FDs $F = \{A \rightarrow BC,\ CD \rightarrow E,\ B \rightarrow D,\ E \rightarrow A\}$ over the relation $R = \{A, B, C, D, E\}$.compute the closure, determine the candidate keys and the non-keys of this relation. [5]
Suppose that we decompose the schema into R1(A,B,C) and R2(A,D,E)
Show that this decomposition is a lossless decomposition.

17. Answer any ***two*** of the following:

a) Explain Join operation in relational algebra? [5]

b) Discuss about Functional dependencies and Armstrong's axioms. [5]

c) Demonstrate Selection and Projection operation with an example each. [5]