Hall Ticket Number:

Code No. :16108 AS N (B)

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (CBCS) VI-Semester Advanced Supplementary Examinations, July-2019

Introduction to Databases

(Open Elective-VII)

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. What is the role of DBA in a data base environment?
2. How data inconsistency problem can be avoided in database systems?
3. Why is a primary key required?
4. Differentiate weak and strong entity sets with an example.
5. Why do we need Normalization?
6. What are insertion, deletion, and update anomalies?
7. What is a serial schedule? Give an example.
8. Define a transaction. Give an example.
9. What is the purpose of a database system?
10. List the properties of a transaction.

Part-B (5 ×10=50 Marks)

11. a) Construct an E-R diagram for a Tiny College with almost all components and explain. [6]

    b) With a neat diagram describe the overall architecture of a Database. [4]

12. a) What is SQL? How SQL functions fit into DDL and DML? Explain in detail. [5]

    b) Explain the different operations in Relational Algebra with the help of an example. [5]

13. a) Compute the closure of the following set of functional dependencies for a relation schema R=(A,B,C,D,E,F,G,H), and F= (AB→C, BD→EF, AD→G, A→H) [5]

    b) List and explain the inference rules of functional dependencies. [5]

14. a) Discuss about conflict serializability with an example. [6]

    b) During its execution, a transaction passes through several states, until it finally commits or aborts. List all possible sequences of states through which a transaction may pass. Explain why each state transition may occur. [4]

15. a) Explain about various constraints used in ER-model. [5]

    b) List and explain common data types available in SQL. [5]

Contd...2

16. a) Write the algorithm to compute the closure of attribute sets. Consider the following set of functional dependencies for the relation R = *(A, B, C, G, H, I)* and find the closure for the attribute set (AG). [5]

$$F = \{A \rightarrow B, A \rightarrow C, CG \rightarrow H, CG \rightarrow I, B \rightarrow H\}$$

b) Discuss about transaction recovery techniques. [5]

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

a) Discuss various data manipulation functions and aggregate functions in SQL. [5]

b) What are the steps involved in the conversion to second normal form? Explain with an example. [5]

c) What is NULL? What is its importance? How are these values handled in relational model? [5]

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