D 111122   (Pages : 2)   Name...

Reg. No....................................

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2024

(CBCSS)

Computer Science

CSS 3C 11—ADVANCED DATABASE MANAGEMENT SYSTEMS

(2019 Admission onwards)

Time : Three Hours   Maximum : 30 Weightage

Section A (Short Answer)

Answer any **four** *questions.*
Each question carries 2 *weightage.*

1. Differentiate DDL and DML.

2. Explain weak entity sets.

3. What is the use of normalization in DBMS ?

4. Briefly explain about the various data types used in SQL.

5. Define Transaction. Explain the need for Concurrency Control.

6. Outline the steps in developing a stored procedure.

7. What is a composite object ? How does OODBMS support Composite objects ?

$(4 \times 2 = 8$ weightage$)$

Section B (Short Essay)

Answer any **four** *questions.*
Each question carries 3 *weightage.*

8. Summarize the processes in the design of a Distributed Database.

9. Identify the states of a transaction. What do you mean by serializability ?

10. Discuss types of locks and levels of locks in SQL.

11. Analyze the working of Timestamp ordering protocol.

Turn over

12. Explain Functional dependency with examples.

13. Compare the different Data Models.

14. Demonstrate with examples, Set operations and Join operations in Relational Algebra.

$(4 \times 3 = 12$ weightage)

Section C (Essay)

Answer any **two** *questions.*
Each question carries 5 *weightage.*

15. a) Discuss the concepts, merits and demerits of OODBMS.

    b) Explain deadlock in concurrency control.

16. a) Demonstrate different types of SQL joins with examples.

    b) Illustrate with an example how a user defined function is created.

17. Explain Multivalued dependency and join dependency. With suitable examples explain 4NF, BCNF, Project Join Normal Form and Domain key normal form.

18. A university registrar's office maintains data about the following entities: (a) courses, including number, title, credits, syllabus, and prerequisites; (b) course offerings, including course number, year, semester, section number, instructor(s), timings, and classroom; (c) students, including student-id, name, and program; and (d) instructors including identification number, name, department, and title. Further, the enrolment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modelled.

    Construct an E-R diagram for the registrar's office. Document all assumptions that you make about the mapping constraints.

$(2 \times 5 = 10$ weightage)