Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 51078

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Fifth/Seventh Semester

Aeronautical Engineering

OIT 551 – DATABASE MANAGEMENT SYSTEMS

(Common to : Aerospace Engineering/Agriculture Engineering/Automobile Engineering/Biomedical Engineering/Electrical and Electronics Engineering/Electronics and Communication Engineering/Electronics and Instrumentation Engineering/Electronics and Telecommunication Engineering/Industrial Engineering/Industrial Engineering and Management/Instrumentation and Control Engineering/Manufacturing Engineering/ /Marine Engineering/Material Science and Engineering/Mechanical Engineering/Mechanical Engineering (Sandwich)/Mechanical and Automation Engineering/Mechatronics Engineering/Medical Electronics/Production Engineering/Robotics and Automation/Bio Technology/Food Technology/ Pharmaceutical Technology)

(Regulations – 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List out the types of attributes in ER model.

2. Differentiate Primary key and Foreign key.

3. Explain commands with respects to SQL : (a) Rename (b) View

4. What is the difference between DDL and DML?

5. Define the term "ODBC".

6. Define Triggers.

7. What is an objective of the normalization?

8. What is functional dependency?

9. What are the database security issues?

10. Define Page ranking.

PART B — (5 × 13 = 65 marks)

11. (a) What is an entity? What is a relationship? Explain ER modeling with the help of database for a Student Management System.

Or

(b) Briefly describe various architectures of Database Systems.

12. (a) Explain the following :

(i) Referential Integrity Constraint (6)

(ii) Domain Integrity constraint. (7)

Or

(b) Explain the following SQL constructs with examples: (i) order by (ii) group by and having (iii) as select (iv) schema

13. (a) Briefly explain the implementation of database programming using ODBC and JDBC.

Or

(b) Explain in detail about the various types of triggers in Oracle.

14. (a) Explain 1NF, 2NF, 3NF, BCNF using appropriate example.

Or

(b) (i) Explain the concept of multi-value dependency with suitable example. (6)

(ii) Describe the design of a banking database system in detail. (7)

15. (a) Explain the Information Retrieval process in detail. Discuss the steps involved in it.

Or

(b) Discuss the following : (i) Encryption and public key infrastructures. (ii) Discretionary Access Control.

PART C — (1 × 15 = 15 marks)

16. (a) Write SQL queries for following set of tables:

EMPLOYEE (EmpNo, Name, DoB, Address, Gender, Salary, DNumber).

DEPARTMENT (DNumber, Dname, ManagerEmpNo, ManagerStartDate).

(i) Display the Age of 'male' employees. (3)

(ii) Display all employees in Department named 'Marketing'. (3)

(iii) Display the name of highest salary paid 'female' employee. (3)

(iv) Which employee is oldest manger in company? (3)

(v) Display the name of department of the employee 'SMITH'. (3)

Or

(b) (i) Construct an ER diagram for university registrar's office. The office maintains data about each class, including the instructor, the enrollment and the time and place of the class meetings. For each student class pair a grade is recorded. Determine the entities and relationships. (7)

(ii) Given a relation R (P, Q, R, S, T) and Functional Dependency set FD = { PQ → R, S → T }, determine whether the given R is in 2NF? If not convert it into 2 NF. (8)