Database Management System (313302)

MSBTE Diploma · K-Scheme · Model Question Paper — Set B

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

Instructions:

1. All questions are compulsory.
2. Answer each next main question on a new page.
3. Illustrate your answers with neat sketches wherever necessary.
4. Figures to the right indicate full marks.
5. Assume suitable data, if necessary.
6. Mobile phone, pager and any other electronic communication devices are not permissible in the examination hall.

Q.1 Attempt any FIVE of the following: **10**

a) Define the terms: i) Data abstraction ii) Instance of a database.

b) State any two of Codd's rules.

c) Define normalization. List the normal forms.

d) List any four string functions of SQL with their use.

e) State any four advantages of PL/SQL.

f) Define sequence. Write the syntax of CREATE SEQUENCE command.

g) List any four causes of database failure.

Q.2 Attempt any THREE of the following: **12**

a) Differentiate between network data model and hierarchical data model. (Any four points)

b) Explain composite, multivalued and derived attributes with E-R notation and example.

c) Write a PL/SQL program to find the largest of three numbers.

d) Explain CREATE, ALTER, DROP and TRUNCATE commands with syntax and example.

Q.3 Attempt any THREE of the following: **12**

a) List and explain the types of database users.

b) Explain strong entity set and weak entity set with a neat E-R diagram.

c) Explain any four types of joins with suitable example.

d) What is a trigger? Write a trigger which does not allow the salary of an employee to be less than 5000 while inserting or updating a record.

Q.4 Attempt any THREE of the following: **12**

a) Differentiate between instance and schema. Explain physical and logical data independence.

b) State and explain ACID properties of a transaction.

c) Explain UNION, UNION ALL, INTERSECT and MINUS set operators with example.

d) Consider the table Employee (eid, ename, job, salary, deptno). Write SQL commands to:
i) Create a view Emp_D10 that contains eid, ename and salary of employees of department 10.
ii) Display the employees from view Emp_D10 whose salary is more than 40,000.
iii) Remove the view Emp_D10.

e) Write a PL/SQL program using an explicit cursor to display the name and salary of all employees.

Q.5 Attempt any TWO of the following: **12**

a) Draw an E-R diagram for a Hospital Management System with entities Patient, Doctor, Ward and Bill. Assume suitable attributes and show the relationships with cardinality.

b) Consider the table Employee (empid, ename, salary, designation, city). Write SQL queries to:
i) Increase the salary of all ‘Clerk’ employees by 10%.
ii) Delete the employees who stay in ‘Thane’.
iii) Display empid and name of employees whose salary is between 25,000 and 45,000.
iv) Insert one record in the Employee table.
v) Add a column email to the Employee table.
vi) Display names of employees starting with the letter ‘S’.

c) Write a PL/SQL program for withdrawal from a bank account. Accept account number and amount; if the balance is less than the amount, raise the user-defined exception insufficient_balance, otherwise update the balance.

Q.6 Attempt any TWO of the following: **12**

a) Consider the schemas Dept (deptno, dname, loc) and Emp (empno, ename, job, sal, deptno). Draw and explain the parent–child relationship and apply referential integrity constraint.

b) Write SQL commands for the following:
i) Create user ‘sales_mgr’ with password ‘sm2026’.
ii) Grant create session and create table privileges to sales_mgr.
iii) Grant select, insert and update privileges on table Orders to sales_mgr.
iv) Create a role ‘report_role’ and grant select privilege on Orders to it.

v) Grant report_role to sales_mgr.

vi) Revoke the update privilege on Orders from sales_mgr.

c) i) Write a PL/SQL procedure that accepts an employee number and a percentage and increases the salary of that employee by that percentage. Call the procedure.

ii) Write a PL/SQL function that accepts a department number and returns the total salary of that department. Call the function.

Note: This is a **model question paper prepared by Ananda Technologies** only for practice and exam preparation, based on the pattern of previous MSBTE question papers and the K-scheme syllabus. It is **not an official MSBTE paper**, and it does **not** mean that these questions will come in the exam. Answers follow standard textbook points; marks shown are indicative. Free for students — anandatechnologies.in