

Database Management System (313302)

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

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: i) Data ii) Data warehouse.
- b) Compare hierarchical and network data model on any two points.
- c) Define candidate key. Give one example.
- d) State the purpose of each section of a PL/SQL block.
- e) List any four data types used in PL/SQL.
- f) Define the terms w.r.t. relational model: i) Tuple ii) Attribute.
- g) State any two applications of database triggers.

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

- a) Describe any four of Codd's twelve rules.
- b) Explain physical, logical and view levels of data abstraction with a neat diagram.
- c) Explain GROUP BY and HAVING clauses with a suitable example.
- d) Write a PL/SQL program to check whether a given number is prime or not.

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

- a) Explain any four advantages of using DBMS instead of a file processing system.
- b) Define normalization. Explain 1NF and 2NF with example.
- c) Differentiate between PL/SQL function and procedure. (Any four points)
- d) Explain ACID properties of a transaction with the example of railway seat booking.

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

- a) Define index. Explain simple, composite and unique index with SQL commands.

- b) Explain predefined and user-defined exceptions in PL/SQL with example.
- c) Consider the table Course (cid, cname, duration, fees, faculty). Write SQL queries to:
 - i) Display all courses taught by faculty 'Patil'.
 - ii) Display course names whose fees are less than 5000.
 - iii) Increase the fees by 500 for courses having duration more than 6 months.
 - iv) Display courses whose fees are between 3000 and 8000.
- d) Write SQL commands to:
 - i) Create user 'lab_user' with password 'lab2026'.
 - ii) Grant create session privilege to lab_user.
 - iii) Grant select, update and delete privileges on table Student to lab_user.
 - iv) Take back the delete privilege from lab_user.
- e) What is a subquery? Explain with suitable examples.

Q.5 Attempt any TWO of the following:

12

- a) Draw the overall structure of DBMS. Explain the query processor and storage manager components.
- b) Draw an E-R diagram for a Banking System with entities Customer, Account, Branch and Transaction. Show a weak entity, composite, multivalued and derived attributes and cardinality.
- c) Write a PL/SQL program using an explicit cursor to display empno, ename and salary of the employees working in department 20, and also display their total salary.

Q.6 Attempt any TWO of the following:

12

- a) Create a sequence roll_seq that starts with 1, increments by 1, minimum value 1, maximum value 60 and no cycle. Use it to insert three records into table Student (rollno, name), display its current value, change the maximum value to 120 and finally remove the sequence.
- b) Explain roll forward (redo) and roll backward (undo) recovery techniques with example.
- c) Write SQL commands to:
 - i) Create tables Customer (cid, cname, city) with cid as primary key and Orders (oid, cid, amount) where cid is a foreign key referencing Customer.
 - ii) Display cid, cname and the total order amount of each customer.
 - iii) Display names of customers whose total order amount is more than 10,000.

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