Darshan UNIVERSITY

Department of Computer Science & Engineering

B.Tech. \ B.Sc. (H) CS | Placement Exam | 19th Jan 2026 | 2027 Passout Batch

Name :

Enrollment No :

Instructions:

1. Attempt all the questions.
2. Write down all SQL answers in the given supplementary.
3. Total Time 2 Hours

Q: 1 **Answer the following questions. (Each carries 0.5 Mark)** 10

1. When you should use the HAVING clause instead of WHERE?
2. What is the primary purpose of Database Normalization?
3. What is difference between Union and Union All?
4. Why is indexing used in a database?
5. What is a Database View?
6. In normalization, _____ dependency occurs when A → B and B → C, then A → C.
7. In the ACID properties, _____ ensures that a transaction executes either 0% or 100%.
8. Can unique key column can store NULL?
9. What are the rules for defining a primary key?
10. What happens if you join two tables without specifying the ON condition?
11. What happens when you try to delete a record that is referenced by a foreign key?
12. What is the difference between CHAR(10) and VARCHAR(10)?
13. What is the difference between a full join and an inner join?
14. What is difference between clustered and non-clustered index?
15. List out the types of triggers.
16. How NULL values affect aggregate functions?
17. Can you use = NULL or <> NULL to check for NULL values? Why?
18. Which window functions assigns a rank or sequence number to rows within a result set?
19. Can you use GROUP BY without aggregate functions?
20. What is the result of 100 + NULL?

Q: 2 **Design database schema for Zomato. Be precise and elaborate as much as you can.** 10

Q: 3 **Table Schema** 10

```
Students (
  StudentID          INT PRIMARY KEY IDENTITY(1,1),
  EnrollmentNo       VARCHAR(20) UNIQUE NOT NULL,
  Name               VARCHAR(100) NOT NULL,
  Branch             VARCHAR(50) NOT NULL,
  CurrentSemester    INT NOT NULL,
  CGPA               DECIMAL(3,2) NULL,
  EnrollmentDate     DATE NOT NULL);
Subjects (
  SubjectID          INT PRIMARY KEY IDENTITY(1,1),
  SubjectCode        VARCHAR(10) UNIQUE NOT NULL,
  SubjectName        VARCHAR(100) NOT NULL,
  Semester           INT NOT NULL,
  Credits            INT NOT NULL,
  Branch             VARCHAR(50));
Results (
  ResultID           INT PRIMARY KEY IDENTITY(1,1),
  StudentID          INT FOREIGN KEY REFERENCES Students(StudentID),
  SubjectID          INT FOREIGN KEY REFERENCES Subjects(SubjectID),
  Semester           INT NOT NULL,
  ExamDate           DATE NOT NULL,
  MarksObtained      DECIMAL(5,2) NOT NULL,
  Grade              VARCHAR(2) NOT NULL CHECK (Grade IN ('AA', 'AB', 'BB', 'BC', 'CC', 'CD', 'DD', 'FF')),
  Gradepoint         Int NOT NULL,
  ResultStatus       VARCHAR(20) CHECK (ResultStatus IN ('Pass', 'Fail', 'Absent'))
);
```

Consider above tables schema and Write following queries:

1. Calculate CGPA of all students.
2. List students which are currently studying in 6th semester and having CGPA more than 7.5.
3. List branch wise Top 5 students based on CGPA. Same CGPA must have same rank.
4. List students with subjects which were Absent in the exam.
5. List subjects which are never taken by any student.
6. List students with subjects who failed the same subject more than once.
7. List students with subject & result whose first exam was within 6 months of the enrollment.
8. List all subjects along with number of students enrolled.
9. Create Histogram. Histogram means Subject wise Grade wise Student count.
10. List students with subject name which are not cleared by the student.
11. List students which never failed in any subject in any semester.
12. Write a query to compare two students' result. Display following columns Enrollment No, Semester, Subject Code, Grade, Grade Comparison Status (Matched, Not-Matched, Subject Not Found). Display all the subjects of both students.
13. List students who have cleared the subjects in more than 5 attempts.