(3 Hours) [Total Marks:100

1. All questions are compulsory.
2. Draw neat and labelled diagram wherever necessary.
3. Figures to the right indicates full marks.
4. Write queries for the below: **10**
5. Design a database and name it ‘University’.
6. Design the following tables:
7. Student\_Master (columns: RollNo, FName, MName, LName, DOB, Gender, City, District).
8. Course\_Master (columns: CourseID, CourseName, Stream).
9. Admission\_Details (columns: RollNo, CourseID, AdmissionDate).
10. Subject\_Master (columns: SubjectID, SubjectName, CourseID, IsTheory, IsPractical, TotalMarks).
11. Exam\_Details (columns: ExamID, ExamDate, RollNo, SubjectID, MarksObtained, Grade, IsPassed)
12. Insert 5 or more records in all of the above tables.
13. Find all the female students who lives in Mumbai district.
14. Find all the students from ‘Science’ stream who have taken admission in last year.
15. Find all the students from ‘Arts’ stream who have obtained ‘A’ grade from the exam held during Jan-2019.
16. Answer any three out of four: **15**
17. Explain Relational Database system and its advantage.
18. Write a short note on data abstraction.
19. Explain 3rd normal form and Boyce-Codd normal form in Normalization with example.
20. Write a short note on ACID properties.
21. Answer any three out of four: **15**
22. Explain merits and demerits of network model.
23. Explain the limitations of File processing systems and steps to overcome by using Database system.
24. Explain the difference between Delete and Truncate command. Also explain cascade deletion with an example.
25. Write a short note on business rules on data model.
26. Answer any three out of four: **15**
27. What is UML? Explain different types of UML diagrams.
28. Explain Inner Join, Left Join, Right Join and Self Join in detail with an example.
29. List and explain the different types of relational database keys.
30. Write a short note on weak entity and strong entity.
31. Answer any three out of four: **15**
32. Explain ER model with example.
33. Explain the projection with example.
34. What is Trigger? Explain the difference between Before and After trigger.
35. Explain the tuple relational calculus.
36. Answer any three out of four: **15**
37. Referring the tables in Q#1, write a query to find Gender wise grades for the admissions taken during Jan-2017.
38. Explain nested sub queries with example.
39. Explain the extended relational algebra operators with example.
40. Explain the concurrency control.
41. Answer any three out of four: **15**
42. Write short note on domain relational calculus.
43. Write a short note on transaction management.
44. Explain the term generalization, specialization and aggregation.
45. Explain the difference between Procedures and Functions.