1. Which normal form ensures that no attribute is multi-valued or composite?

A) 1NF

B) 2NF

C) 3NF

D) BCNF

Answer: A

2. If a table is in 2NF but not in 3NF, it must have:

A) Multivalued dependency

B) Transitive dependency

C) Partial dependency

D) No candidate key

Answer: B

3. A table with composite key (A,B) → C and A → C violates:

A) 1NF

B) 2NF

C) 3NF

D) BCNF

Answer: B

4. In 3NF, a non-prime attribute must not depend on:

A) Candidate key

B) Super key

C) Another non-prime attribute

D) Foreign key

Answer: C

5. Which dependency is preserved in BCNF?

A) Only candidate key dependencies

B) All dependencies

C) Only primary key dependencies

D) None

Answer: A

6. Which normal form guarantees no partial or transitive dependencies?

A) 2NF

B) 3NF

C) BCNF

D) 4NF

Answer: C

7. A table is in BCNF if:
A) Every determinant is a candidate key
B) It has no partial dependency
C) It has no transitive dependency
D) It is in 3NF
Answer: A

8. If a relation is in BCNF, then it must also be in:
A) 2NF and 3NF
B) Only 2NF
C) Only 1NF
D) None
Answer: A

9. Which normal form deals with removing multivalued dependencies?
A) 2NF
B) 3NF
C) 4NF
D) 5NF
Answer: C

10. Which normal form is required to remove join dependency?
A) 2NF
B) 3NF
C) 4NF
D) 5NF
Answer: D

11. A relation is in 2NF if:
A) It has atomic values
B) It is in 1NF and has no partial dependency
C) It is in 3NF
D) It is in BCNF
Answer: B

12. Which is an example of partial dependency?
A) {EmpID, DeptID} → EmpName
B) EmpID → EmpName

C) DeptID → DeptName

D) EmpID → Salary

Answer: A

13. Which is an example of transitive dependency?

A) EmpID → DeptID, DeptID → DeptName

B) EmpID → EmpName

C) DeptID → Salary

D) EmpID → EmpID

Answer: A

14. Which normal form requires that every non-trivial FD has candidate key as determinant?

A) 2NF

B) 3NF

C) BCNF

D) 4NF

Answer: C

15. Which is an advantage of BCNF over 3NF?

A) Eliminates anomalies more strictly

B) Ensures minimal redundancy

C) Improves logical design

D) All of these

Answer: D

16. Which normal form allows dependency preservation but not always lossless join?

A) 3NF

B) BCNF

C) 4NF

D) 5NF

Answer: A

17. Which property is essential for decomposition in normalization?

A) Dependency preservation

B) Lossless join

C) Both A and B

D) None

Answer: C

18. A decomposition is lossless if:

A) Joining back gives original relation
B) Some tuples are lost
C) Extra tuples are added
D) Keys are changed
Answer: A

19. Which dependency can violate 4NF?
A) Multivalued dependency
B) Functional dependency
C) Transitive dependency
D) None
Answer: A

20. Which dependency can violate 5NF?
A) Join dependency
B) Multivalued dependency
C) Partial dependency
D) Transitive dependency
Answer: A

21. Which normal form is also called elementary key normal form?
A) 2NF
B) 3NF
C) BCNF
D) 5NF
Answer: C

22. Which normal form is also called project-join normal form?
A) 3NF
B) 4NF
C) 5NF
D) BCNF
Answer: C

23. Which of the following is stricter?
A) 3NF > BCNF
B) BCNF > 3NF
C) Both same
D) None
Answer: B

24. If R(A,B,C) with FD: A→B, B→C, then R violates:
A) 2NF
B) 3NF
C) BCNF
D) 4NF
Answer: B

25. In 2NF, prime attributes can depend on:
A) Whole key
B) Part of composite key
C) Non-prime attributes
D) None
Answer: A

26. Which dependency always exists in a table?
A) Key → All attributes
B) Attribute → Key
C) Foreign key → Candidate key
D) None
Answer: A

27. If a table has only single attribute key, then:
A) 2NF = 3NF
B) 1NF = 2NF
C) Partial dependency does not exist
D) All of these
Answer: D

28. Which is true about normalization levels?
A) Higher forms remove more redundancy
B) Higher forms are stricter
C) Higher forms may add complexity
D) All of these
Answer: D

29. Which is required to achieve 2NF?
A) Remove partial dependency
B) Remove transitive dependency
C) Remove multivalued dependency

D) Remove join dependency

Answer: A

30. Which is required to achieve 3NF?

A) Remove transitive dependency

B) Remove partial dependency

C) Remove multivalued dependency

D) Remove join dependency

Answer: A

31. Which is required to achieve 4NF?

A) Remove multivalued dependency

B) Remove transitive dependency

C) Remove join dependency

D) Remove partial dependency

Answer: A

32. Which is required to achieve 5NF?

A) Remove join dependency

B) Remove multivalued dependency

C) Remove partial dependency

D) Remove transitive dependency

Answer: A

33. Which is stronger than 3NF but weaker than 4NF?

A) BCNF

B) 2NF

C) 1NF

D) 5NF

Answer: A

34. Which normal form may break dependency preservation sometimes?

A) BCNF

B) 3NF

C) 2NF

D) 1NF

Answer: A

35. Which dependency may cause redundancy even in 3NF?

A) Functional dependency with overlapping candidate keys

B) Multivalued dependency

C) Join dependency

D) None

Answer: A

36. Which normal form ensures that every determinant is a super key?

A) 2NF

B) 3NF

C) BCNF

D) 4NF

Answer: C

37. If a table has attributes A,B,C with FD: A→B, then A must be:

A) Determinant

B) Candidate key

C) Foreign key

D) None

Answer: A

38. If A→B and B→C, then A→C is:

A) Transitive dependency

B) Partial dependency

C) Multivalued dependency

D) None

Answer: A

39. If a decomposition is dependency preserving, then:

A) No FDs are lost

B) Some FDs are lost

C) Extra FDs are added

D) None

Answer: A

40. Which dependency violates BCNF but not 3NF?

A) Candidate key determines non-prime attribute

B) Non-prime determines prime

C) Overlapping candidate key dependency

D) None

Answer: C

41. Which of the following is always true about 3NF?
A) Lossless join
B) Dependency preserving
C) Removes transitive dependency
D) All of these
Answer: D

42. Which is the minimum requirement for 1NF?
A) Atomic values
B) Primary key
C) Foreign key
D) No partial dependency
Answer: A

43. Which is the minimum requirement for 2NF?
A) No partial dependency
B) No transitive dependency
C) No multivalued dependency
D) No join dependency
Answer: A

44. Which is the minimum requirement for 3NF?
A) No transitive dependency
B) No partial dependency
C) No atomic violation
D) No multivalued dependency
Answer: A

45. Which is the minimum requirement for BCNF?
A) Every determinant is a candidate key
B) No transitive dependency
C) No partial dependency
D) No join dependency
Answer: A

46. Which is the minimum requirement for 4NF?
A) No multivalued dependency
B) No join dependency
C) Every determinant is candidate key
D) No atomic violation

Answer: A

47. Which is the minimum requirement for 5NF?
A) No join dependency
B) No transitive dependency
C) No multivalued dependency
D) No partial dependency
Answer: A

48. Which normal form directly deals with redundancy due to multi-valued facts?
A) 4NF
B) 3NF
C) 2NF
D) BCNF
Answer: A

49. Which normal form directly deals with redundancy due to join dependency?
A) 5NF
B) 4NF
C) 3NF
D) BCNF
Answer: A

50. Which normal form is rarely used in practical databases?
A) 1NF
B) 2NF
C) 5NF
D) 3NF
Answer: C