Wachemo University, Ethiopia, Hossana

Faculty of engineering and technology, School of Computing and Informatics.

Department of Information Technology

Course Name: - Advanced Database Management System **Code: -**ITec. 3071

Target Group: - Graduate Class of 2022/3 **Program:** Degree (**Regular**)

Model Examination

Time allowed: 2:00:00 minutes **Total marks**: 100%

Instructor: - Mr. Abebe W. (M.Sc.) **E-mail**: -mareraabe@gmail.com

Read Me: →*This is a closed book exam. No books or other material may be used.*

Part I: choose the most appropriate answer to the following question. (2 pts each)

1. Assume you're a database administrator of X organization, and you're working on a website that connects to a sales database. The SQL queries are included in some of the pages. Which security danger, if any, do you think you'll be most vulnerable to_____?

   A. No problem, as long as the SQL is password-protected, it is safe.

   B. Loss of Integrity.

   C. Hackers do not have a means of accessing the underlying SQL.

   D. There is a risk a hacker would use SQL injection.

2. Which of the following statement is used to remove the privilege from the user Abebe?
   A. Remove update on department from Abebe B. Revoke update on employee from Abebe
   C. Delete select on department from Abebe D. Grant update on employee from Abebe.

3. _____ is eliminating duplication of tuples.

   A. Selection B. Projection C. Rename D. Set difference

4. The basic goal of query optimization is to find the most efficient way of implementing relational algebra operations at the lowest possible cost, so what factors are evaluated to compute the cost of evaluation plan by the optimizer in query processing?

A. Disk access time B. number of operations.

C. Number of tuples to be scanned D. CPU time E. all

5. Assume that if a transaction Tj wants to read a value that has been changed or written by another transaction Ti, Tj's commit must do so after Ti's commit. So, what kinds of recoverable schedules are associated with this scenario?

   A. Cascading Schedule
   B. Cascade less Schedule
   C. Strict Schedule
   D. Serializability

6. Consider the following action

   Transaction

   SQL>commit;

   SQL>Rollback;

   What does rollback can do in the above statement?

   A. Undo the transaction before commit.
   B. Clear the transaction.
   C. Turn back or goes back the transaction.
   D. All of the mention
   E. Nothing.

7. Which one of the following is distributed database design strategies?

   A. Fragmentation.
   B. Replication
   C. Allocations
   D. All

8. How can be managed concurrency control in distributed system?

   A. By applying locking method and lock managers deal with.
   B. Time stamping.
   C. By dead lock
   D. A and B

9. Which privileges should a user be given to log on to the Oracle server?

   A. Grant option
   B. Create Role Option
   C. To
   D. None

10. Which one of the following is cause of transaction Failures?

A. Disk malfunction
C. Transaction error
B. Concurrency control enforcement
D. All of the mentioned

11. Which one of the following is the disadvantage of distributed database?
A. Modularity
C. Complexity
B. Security
D. B and C.
E. None

12. Which of the following depicts the transaction's boundary?
A. Begin & Active state
C. Begin & Rollback
B. Begin & End
D. Begin & Abort

13. After a transaction begins to execute, it enters one of several states, the first of which is the_____ state, in which read or write activities occur.
A. Committed state
C. Aborted State
B. Active State
D. Log state

14. T1 and T2 cannot access the same database at the same time in a_____level lock transaction, even if they utilize distinct tables.
A. Table.
C. Database.
B. Disk.
D. Page.

15. _____ is a transaction property that determines how transaction integrity is apparent to other users and systems.
A. Atomicity
C. Isolation
B. Consistency
D. Durability

16. Two-phase locking defines how transactions acquire and relinquish locks. A.
A. True
B. False

17. Concurrency Control Techniques are which of the following?
A. Time stamping
C. Locking
B. Recovery
D. A & C

18. Which of the following determines Serializability conflicting action?
A. If the action belongs to different transaction
B. If the action accesses the X item with different read and write operation.
C. If the action access X item with the action of write operations.
D. All

E. None

19. In _____ scheme, the older transaction rolls back the younger transaction and reschedules it.

A. wait/die
B. wound/wait
C. Cascading Scheduling

20. Consider this schedule: -

S: R1 (A), W2 (A), Commit2, W1 (A), W3 (A), Commit3, Commit 1.

Which of the following statements about the scheduling strategy is correct?

A. The schedule is view serializable schedule and strict recoverable schedule
B. The schedule is non-serializable schedule and strict recoverable schedule
C. The schedule is non-serializable schedule and is not strict recoverable schedule.
D. The Schedule is serializable schedule and is not strict recoverable schedule

21. The term _____ refers to the process of handling several operations in a database without them interfering with one other.

A. Transaction
B. Concurrency control
C. Database recovery
D. Database security

22. Which one of the following is the basis of ARIES recovery algorithm?

A. Undo phase
B. Redo phase
C. Analysis phase
D. All

23. Concurrency can lead to a slew of issues. If one transaction calculates an aggregate summary function on a number of records while another transaction updates some of those data, the aggregate function may calculate certain values before and after the records are modified. This is referred to as Problems Caused by Concurrency_____

A. Lost Update problem
B. Uncommitted dependency problem
C. Inconsistency analysis problem.

24. Which of the following is likely to result in a deadlock.

A. Mutual exclusion
B. Circular Wait

C. No Preemption

D. All

25._____is the process of restoring the database to a correct (consistent) state in the event of a failure.

A. Database Concurrency B. Database recovery

26. Which one of the following is distributed database design strategies?

A. Fragmentation. B. Replication C. Allocations D. All E. None

27. How can be managed concurrency control in distributed system?

A. By applying locking method and lock managers deal with.

B. Time stamping.

C. By dead lock

D. A and B E. A and C.

28. Which one of the following is failed under multimedia data?

A. Image B. Video C. Audio D. All E. None

29. Which privileges should a user be given to log on to the Oracle server?

A. Grant option

B. Create Role Option

C. To

D. None

30. Which one of the following is cause of transaction Failures?

A. Disk malfunction.

B. Concurrency control enforcement.

C. Transaction error.

D. None E. All of the mentioned

31. The DB operation in a transaction to update the DB. i.e., insert, update, delete and so on SQL statements is a good example of _____

A. Write Transaction B. Begin Transaction C. Read only Transaction D. none

32. If a schedule is not conflict serializable, it is not possible for there to be an equivalent serial schedule.

A. TRUE B. FALSE

33. Which one of the following is the disadvantage of distributed database?

A. Modularity B. Security C. Complexity D. All E. None

34. The process of determining the best approach for processing a query is known as___

A. Query processing B. Query Optimization C. Query Cost D. Query Management

35. Which of the following is not a relational algebraic operation that does not form the set theory?

A. UNION

B. INTERSECTION

C. CARTESIAN PRODUCT

D. SELECT

36. Which is the symbol used to denote the SELECT operation?

A. Sigma

B. Rho

C. Pi

37. What will be the number of columns of CARTESIAN PRODUCT if the participating relations have 5 and 7 columns respectively?

A. 5

B. 12

C. 35

D. None of the above.

38. The _____ operations are used to add new documents into the collection.

A. Read B. Update C. Create D. None of the above.

39. A _____ on a data item can either have locked or unlocked states.

A. Binary lock

B. Shared Lock

C. None of the above.

40. If all transactions are read-only transactions, then every schedule will be serializable schedules.

A. TRUE

B. FALSE

41. The process of converting data into an unreadable format for those who do not have access to the key is known as_____.

A. Data security
B. Database security management
C. Data authentication
D. No answer

42. A distributed database has which of the following advantages over a centralized database?
A. Software cost
B. Software complexity
C. Slow Response
D. Modular growth

43. A distributed database is which of the following?
A. A single logical database that is spread to multiple locations and is interconnected by a network
B. A loose collection of files that is spread to multiple locations and is interconnected by a network.
C. A single logical database that is limited to one location.
D. A loose collection of files that is limited to one location.

44. Which of the following is the oldest database model?
A. Hierarchical.
B. Network.
C. Relational.
D. Object Oriented.

45. Procedural language among the following is _____.
A. Domain relational calculus
B. Tuple relational calculus
C. Relational algebra
D. Query language

46. Which type of data can be stored in the database?
A. Image oriented data
B. Text, files containing data
C. Data in the form of audio or video

D. All of the above

47. A transaction goes into an _____ state immediately after it starts execution where it can issue *read* or *write* operations.

A. Active

B. Commit

C. Partially commit.

D. Begin.

48. _____is Potential Problems Caused By Concurrency which is occurs when a transaction read several values from the database but a second transaction updates some of the them during the execution of the first.

A. Lost update problem.

B. Temporary update problem.

C. Inconsistent analysis problem.

D. Dirty read problem

49. Which one of the following is true about handling of deadlock.

A. If the probability of deadlocks is low > deadlock detection,

B. If the probability of deadlocks is high > deadlock prevention.

C. If response time is not high on the system's priority list > deadlock avoidance.

D. All

50. In ARIES recovery Algorithm which phase is determine Undo transaction.

A. Redo Pass.

B. Undo pass.

C. Analysis pass.

Good Luck!!