Question 1: Which of these statements about serializable schedules is true?

1. Every serializable schedule is recoverable.
2. Every serializable schedule contains no conflicting actions.
3. Every 2PL schedule is serializable.
4. None of the above.

Question 2: Which of these statements about recoverable schedules is true?

1. Every recoverable schedule is serializable.
2. In a recoverable schedule, if a transaction T commits, then any other transaction that T read from must also have committed.
3. In a recoverable schedule, no transaction will ever be aborted because a transaction that it read from has aborted.
4. None of the above.

Question 3: In which of the following situations is optimistic concurrency control with validation likely to perform better than locking with 2PL?

1. A high-contention workload where all the transactions need to update a single record.
2. A read-mostly workload, where most transactions just read a small number of data items, and a few transactions write data items.
3. A distributed database where all the transactions need to read and write objects on multiple servers.
4. All of the above.

Question 4: Which of these statements about deadlock are true?

1. If all transactions use two-phase locking, they cannot deadlock.
2. Once two transactions deadlock, we can maintain correctness without aborting the transactions.
3. Systems that support locks (S, X modes) cannot deadlock.
4. Validation based concurrency control schemes cannot deadlock.

Question 5: What is a database?

1. Organized collection of information that cannot be accessed, updated, and managed.
2. Collection of data or information without organizing.
3. Organized collection of data or information that can be accessed, updated, and managed.
4. Organized collection of data that cannot be updated.

Question 6: What does an RDBMS consist of?

1. Collection of Records.
2. Collection of Keys.
3. Collection of Tables.
4. Collection of Fields.

Question 7: Which command is used to remove a relation from an SQL?

1. Drop.
2. Delete.
3. Purge.
4. Remove.

Question 8: \_\_\_\_\_\_\_ indicates the maximum number of entities that can be involved in a relationship.

1. Greater Entity Count.
2. Minimum cardinality.
3. Maximum cardinality.
4. Generalization.

Question 9: Why the following statement is erroneous?

SELECT dept\_name, ID, avg (salary)

FROM instructor

GROUP BY dept\_name;

1. Dept\_id should not be used in group by clause.
2. Group by clause is not valid in this query.
3. Avg(salary) should not be selected.
4. None.

Question 10: What does a foreign key combined with a primary key create?

1. Network model between the tables that connect them.
2. Parent-Child relationship between the tables that connects them.
3. One to many relationships between the tables that connects them.
4. All of the mentioned.

Question 11: Cartesian product in relational algebra is:

1. Unary operator.
2. Binary operator.
3. Ternary operator.
4. Not defined.

Question 12: DML is provided for:

1. Description of the logical structure of a database.
2. The addition of new structures in the database system.
3. Manipulation & processing of the database.
4. Definition of a physical structure of the database system.

Question 13: In ERD entities are represented by:

1. rectangle.
2. square.
3. triangle.
4. ellipse.

Question 14: Which of the following operation is used if we are interested in only certain columns of a table?

1. Projection.
2. Selection.
3. Union.
4. Join.

Question 15: What of the following can replace the below query?

SELECT Name, ID

From Student, Courses

Where Student\_ID = Courses\_ID

1. Select Name, ID from Courses, Student where Student\_ID == ID.
2. Select Name, ID from Student natural join Courses.
3. Select Name, ID from Student.
4. Select ID from Student join Courses.

Question 16:The OS supplies an interface to:

1. The hardware components.
2. The extended machine.
3. The CPU and its registers.
4. The software applications.

Question 17:In kernel mode:

1. The system can exploit the complete hardware functionality.
2. Access to hardware components is restricted.
3. Full access to the directory-tree is allowed
4. Is the mode where applications run.

Question 18:What is a Process:

1. The code of a program.
2. An abstraction of a running program.
3. A sequence of events.
4. CPU consumer.

Question 19:A program to a process is like:

1. A class to an object.
2. A CPU to RAM.
3. A Mutex to Semaphore.
4. A software to hardware.

Question 20: If we have 3 processes that are waiting for input 70% of their time, 4 processes that are waiting for input 80% of their time, and 5 processes that are waiting for input 90% of their time, the system is idle:

1. Less than 10% of the time.
2. 10% to 20% of the time.
3. 20% to 30% of the time
4. More than 30% of the time.

Question 21:Accessing another process address space is:

1. Always allowed.
2. Never allowed.
3. Allowed only when the processes have a shared parent.
4. Allowed only when the processes were written by the same developer.

Question 22:An IO-bound process:

1. Accesses IO sometimes.
2. Does minor computations and then runs an IO request.
3. Does nothing but IO requests.
4. Access only CPU.

Question 23:In interactive environments:

1. There is never any starvation.
2. Response time is critical.
3. Non-preemptive algorithms may apply.
4. We do anything to avoid Starvation.

Question 24:A critical section is:

1. Code where a race may exist.
2. Code where two threads are activated.
3. Code where there is a potential deadlock.
4. Code where we need to insert Mutex.

Question 25:The producer-consumer problem is:

1. When one threads writes to a queue and another thread removes from the queue.
2. When many threads must synchronize writing to the same queue.
3. A problem with no critical sections.
4. A problem in scheduling