

MIS2502: Exam 1 Study Guide (Spring 2024)

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The exam will be a combination of multiple-choice and short-answer questions. It is a closed-book, closed-notes exam. The exam is a paper-and-pencil exam.

The exam will have two parts.

In part 1 of the exam you will answer roughly 20 multiple choice questions using a SCANTRON sheet.

In part 2 you will answer roughly four SQL questions, by writing SQL statements in the blanks provided.

The following is a list of items that you should review in preparation for the exam. Note that ***not every item on this list may be on the exam, and there may be items on the exam not on this list.***

The Things You Can Do with Data/The Information Architecture of an Organization

- What is the difference between data and information? Give examples.
- What are the characteristics of a transactional database?
 - What are the goals and benefits of this type of database?
- What are the characteristics of an analytical data store?
 - What are the goals and benefits of this type of database?
- What is the relationship between a transactional database and an analytical data store?

Relational Data Modeling

Schema

- Be able to draw the corresponding schema of an ERD
 - Identify tables based on entities and relationships
 - Understand and implement primary key/foreign key relationships
 - Decomposing many-to-many relationships in an ERD into one-to-many relationships in the schema
- Understand the concept of normalization
- Cardinality
 - Maximum cardinality: One-to-one, one-to-many, many-to-many
 - Minimum cardinality: optional or mandatory (i.e., 0 or 1)
- Identify when attributes describe entities and when they describe relationships

SQL (Both Part 1 / Basic and Part 2 / Advanced)

- **Simple SQL queries and Joining tables will be on this exam.**
- Given a schema of a database, be able to create a SQL statement to answer a question
 - e.g., In what state does customer Bob Smith live?
How many people live in each state?
What is the average SAT score among freshmen?
 - Implement a join of multiple tables
 - Understand the difference between inner join and outer join (left join)
- Understand how to use
 - SELECT
 - FROM
 - DISTINCT
 - WHERE (and how to specify conditions)
 - AND/OR/LIKE
 - COUNT, AVG, MIN, MAX, SUM
 - GROUP BY
 - ORDER BY (ASC/DESC)
 - LIMIT
 - JOIN/LEFT JOIN
- Put single quotes around string (non-numeric) values.
 - For example, 'NJ'