

Study Guide for ISQA 8050 Test Out Exam

Purpose of the Test Out Exam

The test out exam is designed to assess your knowledge in the following areas: database and computer networks. Percentages are assigned in accordance to the weight each topic has in ISQA 8050. The test out will contain different question types such as True/False, Matching, Multiple Choice, Short Answer, and Modeling (ERD).

Grading

You need to reach at least 50% in each of the three section, and at least 75% overall in order to pass the exam.

Preparation

The purpose of the test out exam is to verify that you have the necessary knowledge and skills based on prior work experience or course work. The test out exam is not a substitution for a class or work experience. So, there should be not a need to prepare extensively for this exam. If you don't know the topics we cover in ISQA 8050 then you should take ISQA 8050. Remember, you will need the topics we teach in this class for subsequent classes. Mastery of the ISQA 8050 topics is important.

Textbook used in ISQA 8050 (you should not need this textbook in order to study, if you need them consider taking ISQA 8050):

- Database Part: Modern Database Management by Hoffer et al.
- Computer networks: Business Data Communications and Networking by Fitzgerald et al.

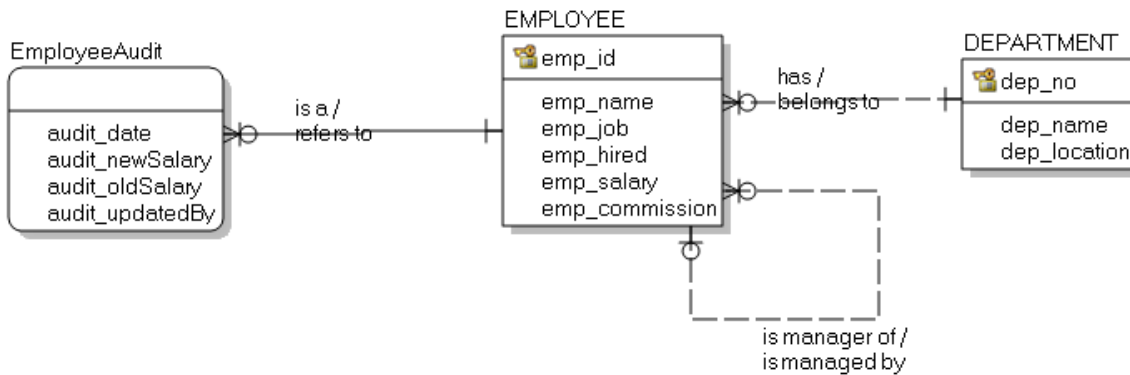
There will not be any further material available for the test out exam.

Topics

Database (approx. 60%)

- Understand the terms 'database', 'database management system', 'relational database'
- Understand problems associated with traditional file processing systems and how the database approach solves problems of traditional file processing systems
- Understand the database development process, and how it fits into the broader context of systems analysis, design, and implementation
 - Understand the ANSI/SPARC model
 - Understand the difference between a conceptual and logical model
- Understand and apply normalization to relations in a relational DBMS
 - Functional dependency, partial and transitive dependencies, UNF, 1NF, 2NF, 3NF
- Understand the data integrity issues associated with database systems and how these are addressed in contemporary database management systems
 - Entity integrity, domain integrity (domain constraints), referential integrity
- Use (a subset of) the SQL data manipulation and definition language
 - Be able to identify the results of a query (INSERT, UPDATE, DELETE, SELECT (FROM, WHERE, AND, OR, JOIN, DISTINCT, BETWEEN, IN))
 - Be able to write simply SQL SELECT queries
- Understand and use techniques and tools for developing data models, as part of a database analysis and design effort

- Be able to write an Entity-Relationship-Diagram based on a problem statement and business rules
- Identify entities, attributes, and relationships
 - Identify primary keys if any
 - Identify minimum and maximum cardinality for relationships and identify an appropriate verb phrase for the relationships
 - Use appropriate entity and attribute names with pre-fixes
- Use Crow's Foot Notation
- Example for a conceptual model: See below



- Transform a conceptual model into a logical model (= transform ERDs to tables)
 - Identify primary keys and foreign keys, resolve m:n relationships

Computer Networks (approx. 20%)

- Understand basic network components: applications, host, routers, link
- Understand network types (PAN, LAN, etc.)
- Understand C/S versus P2P architecture
- Understand multi-tiered Computer Architecture (n-tier CS architectures)
- Understand Circuit versus Packet Switching
- Understand OSI Reference Model
 - Know the different layers, the names, the sequence of layers, and the responsibilities of each layer (you don't need to know an explanation for the presentation and session layer, but you should know that they are part of the OSI Reference Model)
 - How layers add to the original message
 - TCP/IP Reference Model and example protocols