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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) What is meant by data definition language?**

used to describe external and logical schemas.

**Q2) Define the following term: relation cardinality.**

is the number of tuples in the relation.

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) What is meant by data manipulation language?**

used to access and update data

**Q2) Define the following term: relation degree.**

the number of fields (or columns) in the relation

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) What is meant by data model?**

fundamental to representing information

**Q2) What is a foreign key constraint?**

Item named in one relation must correspond to tuple(s) in another that describes the item

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Explain the following terms briefly: attribute, domain.**

a property or description of an entity/ a set of possible values for an attribute

**Q2) What is referential integrity?**

**Item named in one relation must correspond to tuple(s) in another that describes the item**

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Explain the following terms briefly: entity, relationship.**

an object in the real world that is distinguishable from other objects/ an association among two or more entities

**Q2) Define the term functional dependency.**

1. X *→* Y, if the Y-values are determined by the X-values.

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 | |  | | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** | |

**Q1) Explain the following terms briefly: one-to-many relationship, many-to-many relationship.**

key constraint that indicates that one entity can be associated with many of another entity/ a key constraint that indicates that many of one entity can be associated with many of another entity

**Q2) What is the difference between Database and Information?**

An organized collection of logically related data/ Data processed to be useful in decision making

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Define the following term: attribute domain.**

to the data type associated with a column

**Q2) Define DBMS.**

a data storage and retrieval system which permits data to be stored non-redundantly

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Define the following term: relation schema.**

basic information describing a table or *relation*.

**Q2) What are the different languages in SQL?**

DDL, DML, DCL

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Define the following term: *relational database schema*.**

collection of relation schemas, describing one or more

relations.

**Q2) Define data redundancy.**

* duplicate data

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Define the following term: *relation instance*.**

is a set of tuples (also known as *rows* or *records*) that each conform to the schema of the relation.

**Q2) What is Data Normalization?**

* **tool to validate and improve a logical design so that it satisfies certain constraints that *avoid unnecessary duplication of data***

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) What are the types of Database Models?**

Heirarchical, Network, Relational

**Q2) What are the rules of naming tables?**

Start with alphabetic, not a reserved word, not >30 character

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **12/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Define the following term: *semantic constraints***

express rules of application

**Q2) What type of Normalization that is fully normalized?**

BCNF

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Define the following term: *relationship set***

- a collection of similar relationships

**Q2) What is the purpose of physical database design?**

translate the logical description of data into the *technical specifications* for storing and retrieving data

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Define the following term: *entity set***

a collection of similar entities such as all of the toys in the toy department.

**Q2) What is the goal of physical database design?**

create a design for storing data that will provide *adequate performance* and insure *database integrity*, *security* and *recoverability*

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) What is Deletion anomaly?**

- deleting rows may cause a loss of data that would be needed for other future rows

**Q2) What are the domain constraints?**

* Allowable values for an attribute

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) What is Modification anomaly?**

changing data in a row forces changes to other rows because of duplication

**Q2) What are the types of Joins in SQL?**

Equi-join, Natural join, Outer join, Union join

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) What are the levels of Database Architecture?**

Internal, Conceptual, External

**Q2) What is the objective of Normalization?**

***to create relations where every dependency is on the key, the whole key, and nothing but the key*”.**

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Give 4 examples for the basic operations on a table**

Insert, delete, update, select

**Q2) Define transitive dependency.**

**A 🡪 B and B 🡪 C.**

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Define candidate key.**

is a minimal [superkey](https://en.wikipedia.org/wiki/Superkey) for that relation

**Q2) Define partial dependency.**

an attribute B is functionally dependent on an attribute A, and A is a component of a multipart candidate key.

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) What is Denormalization?**

Transforming *normalized* relations into *unnormalized* physical record specifications

**Q2) What are the integrity constraints?**

* Restriction on state (or sequence of states) of database

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Describe a relation in 3NF**

A relation is in **3NF** if the relation is in 1NF and all determinants of *non-key* attributes are candidate keys

**Q2) Give 4 examples on the aggregate functions applied on a table**

Max, avg, sum, count

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Describe a relation in 2NF**

Every non-key attribute must be defined by the entire key, not by only part of the key

**Q2) What are the Business rules?**

Statements that define or constrain some aspect of the business

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) What is Insertion anomaly?**

adding new rows forces user to create duplicate data

**Q2) Give 3 decisions taken for a physical database design**

Attribute data types, Physical record descriptions, File organizations, Indexes and database architectures, Query optimization

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| **2nd Term (2018-2019) - Oral Exam**  **Class: 3rd Year Students**  **Subject:** Database Management Systems  **Course Code:** DBA 372 |  | **Date**: **15/5/2019**  **Time: 5 minutes**  **Examiners: Dr. Walaa Medhat** |

**Q1) Give 3 inputs to a physical database design**

Normalized relations, Volume estimates, Attribute definitions, Response time expectations, Data security needs, Backup/recovery needs, Integrity expectations, DBMS technology used

**Q2) What is meant by well-structured relations?**

* A relation that contains minimal data redundancy and allows users to insert, delete, and update rows without causing data inconsistencies

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