Introduction to Database Management and SQL Fundamentals Assessment

Student Name: _____	**Class:** _____
Student ID: _____	**Date:** _____

Assessment Details

Duration: 2 hours	**Total Marks:** 100
Topics Covered:	• Introduction to Database Management • SQL Fundamentals • Database Design • Querying and Manipulating Data

Instructions to Students:

1. Read all questions carefully before attempting.
2. Show all working out - marks are awarded for method.
3. Calculator use is permitted except where stated otherwise.
4. Write your answers in the spaces provided.
5. If you need more space, use the additional pages at the end.
6. Time management is crucial - allocate approximately 1 minute per mark.

Section A: Multiple Choice [20 marks]

Question 1 **[2 marks]**

What is the purpose of the `SELECT` statement in SQL?

A) To insert data into a table

B) To update data in a table

C) To retrieve data from a table

D) To delete data from a table

Question 2 **[2 marks]**

Which data type is used to store dates and times in SQL?

A) Integer

B) String

C) Date

D) Time

Question 3 **[2 marks]**

What is the difference between a primary key and a foreign key in a database?

A) A primary key is used to link tables, while a foreign key is used to uniquely identify a record

B) A primary key is used to uniquely identify a record, while a foreign key is used to link tables

C) A primary key is used to store data, while a foreign key is used to retrieve data

D) A primary key is used to update data, while a foreign key is used to delete data

Question 4 **[2 marks]**

Which SQL clause is used to filter data based on conditions?

A) WHERE

B) FROM

C) GROUP BY

D) HAVING

Question 5 **[2 marks]**

What is the purpose of indexing in a database?

A) To improve data security

B) To improve data integrity

C) To improve query performance

D) To improve data storage

Section B: Short Answer Questions [40 marks]

Question 6 [8 marks]

Write a SQL query to retrieve all rows from a table where the age is greater than 25.

Question 7 [8 marks]

Explain the difference between `INNER JOIN` and `LEFT JOIN` in SQL. Provide an example of when to use each.

Question 8 [8 marks]

Describe a scenario where you would use a subquery in SQL. Provide an example query.

Question 9 [8 marks]

Write a SQL query to update all rows in a table where the name is 'John'.

Question 10 **[8 marks]**

Explain the concept of normalization in database design. Provide an example of how to normalize a table.

Section C: Project-Based Task [40 marks]

Question 11 **[40 marks]**

Design and implement a simple database to store information about students, including their names, ages, and grades. Write SQL queries to retrieve and manipulate the data.

a) Design the database schema [10 marks]

b) Write SQL queries to retrieve and manipulate the data [20 marks]

c) Provide a brief explanation of your design and query decisions [10 marks]

Additional Space for Answers

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