

Module 5 – Using Databases

The following is the Syllabus for Module 5, *Using Databases*, which is the basis for the theory and practice-based test in this module.

Module Goals

Module 5 *Using Databases* requires the candidate to understand the concept of a database and demonstrate competence in using a database.

The candidate shall be able to:

- Understand what a database is and how it is organized and operated.
- Create a simple database and view the database content in various modes.
- Create a table, define and modify fields and their properties; enter and edit data in a table.
- Sort and filter a table or form; create, modify and run queries to retrieve specific information from a database.
- Understand what a form is and create a form to enter, modify and delete records and data in records.
- Create routine reports and prepare outputs ready for distribution.

CATEGORY	SKILL SET	REF.	TASK ITEM
5.1 Understanding Databases	5.1.1 Key Concepts	5.1.1.1	Understand what a database is.
		5.1.1.2	Understand the difference between data and information.
		5.1.1.3	Understand how a database is organized in terms of tables, records and fields.
		5.1.1.4	Know some of the common uses of large-scale databases like: airline booking systems, government records, bank account records, hospital patient details.
	5.1.2 Database Organization	5.1.2.1	Understand that each table in a database should contain data related to a single subject type.
		5.1.2.2	Understand that each field in a table should contain only one element of data.
		5.1.2.3	Understand that field content is associated with an appropriate data type like: text, number, date/time, yes/no.

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		5.1.2.4	Understand that fields have associated field properties like: field size, format, default value.
		5.1.2.5	Understand what a primary key is.
		5.1.2.6	Understand what an index is. Understand how it allows for faster data access.
	<i>5.1.3 Relationships</i>	5.1.3.1	Understand that the main purpose of relating tables in a database is to minimize duplication of data.
		5.1.3.2	Understand that a relationship is built by matching a unique field in one table with a field in another table.
		5.1.3.3	Understand the importance of maintaining the integrity of relationships between tables.
	<i>5.1.4 Operation</i>	5.1.4.1	Know that professional databases are designed and created by database specialists.
		5.1.4.2	Know that data entry, data maintenance and information retrieval are carried out by users.
		5.1.4.3	Know that a database administrator provides access to specific data for appropriate users.
		5.1.4.4	Know that the database administrator is responsible for recovery of a database after a crash or major errors.
5.2 Using the Application	<i>5.2.1 Working with Databases</i>	5.2.1.1	Open, close a database application.
		5.2.1.2	Open, close a database.
		5.2.1.3	Create a new database and save to a location on a drive.
		5.2.1.4	Display, hide built-in toolbars. Restore, minimize the ribbon.
		5.2.1.5	Use available Help functions.
	<i>5.2.2 Common Tasks</i>	5.2.2.1	Open, save and close a table, query, form, report.
		5.2.2.2	Switch between view modes in a table, query, form, report.

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		5.2.2.3	Delete a table, query, form, report.
		5.2.2.4	Navigate between records in a table, query, form.
		5.2.2.5	Sort records in a table, form, query output in ascending, descending numeric, alphabetic order.
5.3 Tables	<i>5.3.1 Records</i>	5.3.1.1	Add, delete records in a table.
		5.3.1.2	Add, modify, delete data in a record.
	<i>5.3.2 Design</i>	5.3.2.1	Create and name a table and specify fields with their data types like: text, number, date/time, yes/no.
		5.3.2.2	Apply field property settings: field size, number format, date/time format, default value.
		5.3.2.3	Create a validation rule for number, date/time, currency.
		5.3.2.4	Understand consequences of changing data types, field properties in a table.
		5.3.2.5	Set a field as a primary key.
		5.3.2.6	Index a field (with, without duplicates allowed).
		5.3.2.7	Add a field to an existing table.
		5.3.2.8	Change width of columns in a table.
5.4 Retrieving Information	<i>5.4.1 Main Operations</i>	5.4.1.1	Use the search command for a specific word, number, date in a field.
		5.4.1.2	Apply a filter to a table, form.
		5.4.1.3	Remove the application of a filter from a table, form.
	<i>5.4.2 Queries</i>	5.4.2.1	Understand that a query is used to extract and analyse data.
		5.4.2.2	Create a named single table query using specific search criteria.
		5.4.2.3	Create a named two-table query using specific search criteria.

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		5.4.2.4	Add criteria to a query using one or more of the following operators: = (Equal), <> (Not equal to), < (Less than), <= (Less than or equal to), > (Greater than), >= (Greater than or equal to).
		5.4.2.5	Add criteria to a query using one or more of the following logical operators: AND, OR, NOT.
		5.4.2.6	Use a wildcard in a query, * or %, ? or —.
		5.4.2.7	Edit a query: add, modify, remove criteria.
		5.4.2.8	Edit a query: add, remove, move, hide, unhide fields.
		5.4.2.9	Run a query.
5.5 Objects	<i>5.5.1 Forms</i>	5.5.1.1	Understand that a form is used to display and maintain records.
		5.5.1.2	Create and name a form.
		5.5.1.3	Use a form to insert new records.
		5.5.1.4	Use a form to delete records.
		5.5.1.5	Use a form to add, modify, delete data in a record.
		5.5.1.6	Add, modify text in headers, footers in a form.
5.6 Outputs	<i>5.6.1 Reports, Data Export</i>	5.6.1.1	Understand that a report is used to print selected information from a table or query.
		5.6.1.2	Create and name a report based on a table, query.
		5.6.1.3	Change arrangement of data fields and headings within a report layout.
		5.6.1.4	Present specific fields in a grouped report by sum, minimum, maximum, average, count, at appropriate break points.
		5.6.1.5	Add, modify text in headers, footers in a report.

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		5.6.1.6	Export a table, query output in spreadsheet, text (.txt, .csv), XML format to a location on a drive.
	<i>5.6.2 Printing</i>	5.6.2.1	Change the orientation (portrait, landscape) of a table, form, query output, report. Change paper size.
		5.6.2.2	Print a page, selected record(s), complete table.
		5.6.2.3	Print all records using form layout, specific pages using form layout.
		5.6.2.4	Print the result of a query.
		5.6.2.5	Print specific page(s) in a report, print complete report.