1. batch, script and transaction
   - batch is a collection of commands that are independent from each other i.e. if one failed the next won't be affected,

   - transaction is a collection of commands that are executed as a whole if any command failed the whole transaction will be rolled back

   - a script is a set of commands

2. trigger and stored procedure
   - a trigger is some sort of a stored procedure, but it can't be executed manually it's set to execute on event

   - a procedure is a set of logically related commands that execute upon calling that procedure it can include DDLs and DMLs

3. stored procedure and functions
   - a procedure is a set of logically related commands that execute upon calling that procedure it can include DDLs and DMLs

   - a function differs from a procedure that it can't contain DDLs or DMLs (allowed on variables). It can only read and view data i.e. select statements

4. drop, truncate and delete statement
   - drop works on tables, table indexes, functions, procedures, databases, … etc. (objects generally)

   - truncate works on data and it isn't logged unless it is in an explicit transaction. It is only used to remove all data i.e. can't come with a where clause

   - delete works on data and it will always be logged

5. select and select into statement

- select gets data from a table or collection of tables and presents it

- select into gets data from a table or collection of tables and inserts it to another table

6. local and global variables
   - local variables are cleared from memory once their batch is executed
   - global variables can be accessed anywhere anytime

7. convert and cast statements
   - the only difference is that convert can present the data object in different formats

8. DDL, DML, DCL, DQL and TCL
   - Data Definition Language used to deal with the meta data of the database like (CREATE, ALTER, DROP, TRUNCATE)

   - Data Manipulation Language used to manipulate data like (UPDATE, DELETE, INSERT)

   - Data Control Language used to control data access like (GRANT, REVOKE).

   - Data Query Language used to view data like (SELECT)

   - Transaction Control Language used to control transactions like (COMMIT, ROLLBACK)

9. For xml raw and for xml auto
   - XML raw can't deal with joins while auto is designed to deal with joins

10. Table valued and multi statement function
    - Table valued returns one or more columns of a table without manipulation i.e. just a select statement.

- Multi statement function performs some operations on the read data and restore them in a table variable then it returns it.

11. Varchar(50) and varchar(max)
    - The first allocates only 50 bytes, while the second allocates the maximum 8000 bytes.

12. Datetime, datetime2(7) and datetimeoffset(7)
    - Datetime Defines a date that is combined with a time of day with fractional seconds that is based on a 24-hour clock.

    - datetime2(7) Defines a date that is combined with a time of day that is based on 24-hour clock. datetime2 can be considered as an extension of the existing datetime type that has a larger date range, a larger default fractional precision, and optional user-specified precision 7 in this case.

    - datetimeoffset(7) Defines a date that is combined with a time of a day based on a 24-hour clock like datetime2, and adds time zone awareness based on UTC (Universal Time Coordinate or Greenwich Mean Time).

13. Default instance and named instance
    - Default has no name only the name of the PC while named instance you specify a name for it, a PC can only have one default instance.

14. SQL and windows Authentication
    - SQL Auth is based on a username and a password registered on the DB while the Windows Auth. Uses the current windows user data to check if you should or shouldn’t access the DB.

15. Clustered and non-clustered index
    - Clustered works when there is no repletion in the key and it’s used to sort the data physically, a table can only have one clustered index

- Non-Clustered indexes is an index that is stored separately from the data hence you can have more than one non-clustered index it's used to index tables that have high query probability to enhance the retrieval time.

16. Group by rollup and group by cube
    - ROLLUP operator is used to calculate sub-totals and grand totals for a set of columns passed to the "GROUP BY ROLLUP" clause.

    - The CUBE operator is also used in combination with the GROUP BY clause, however the CUBE operator produces results by generating all combinations of columns specified in the GROUP BY CUBE clause.

17. Sequence object and identity
    - Sequence is an independent object that can be used anywhere.

    - Identity is related to a table and the user can't manipulate it.

18. Inline function and view
    - The only difference is that an inline function can be dynamic as it can take parameters.

19. Table variable and temporary table
    - A table variable is cleared from memory after the batch is executed

    - A temporary table is stored on the tempDB and it's cleared only when the server is closed (or manually)

20. Row_number() and dense_Rank() function
    - Row Number gives a number sequentially to each row according to the retrieved order and the partition.

- Dense gives the same number to the rows having the same value in the column it’s ranking upon, this also happens for each partition independently