**Advanced Excel Part 2**

**1. What does the dollar($) sign do?**

The dollar sign in Excel is used to create absolute references in a formula, as opposed to relative references. When you put a dollar sign before a row number or column letter (like $A$1), it "locks" that cell reference in place. So, if you copy a formula that includes $A$1, the reference to that cell will stay fixed, no matter where you move the formula. This is useful when you need to refer to the same cell across multiple formulas without having the reference change as you copy it. For example, if you're calculating something based on a specific value (like a fixed tax rate) and you don’t want the cell reference to shift as you drag the formula, you'd use a dollar sign.

**2. How to Change the Reference from Relative to Absolute (or Mixed)?**

To switch between relative, absolute, or mixed references in a formula, you simply select the cell reference and press F4 on your keyboard.

- Relative reference: A1 (will change when copied)

- Absolute reference: $A$1 (won’t change when copied)

- Mixed reference: $A1 or A$1 (only the row or column is fixed)

You can toggle through the different options by repeatedly pressing F4 while your cursor is on the cell reference in the formula.

**3. Explain the order of operations in Excel?**

Excel follows the standard PEMDAS order of operations, which stands for Parentheses, Exponents, Multiplication and Division (from left to right), and Addition and Subtraction (from left to right). This means Excel will first calculate any operations inside parentheses, then handle exponents (if there are any), followed by multiplication or division, and finally, addition or subtraction. This ensures that formulas are calculated correctly according to the mathematical rules of precedence.

**4. What, according to you, are the top 5 functions in Excel and write a basic syntax for any of two?**

Some of the top functions in Excel (based on their utility) are:

- SUM(): Adds up a range of numbers.

- AVERAGE(): Finds the average of a range of numbers.

- VLOOKUP(): Looks for a value in a table and returns a related value.

- IF(): Performs a logical test and returns one value if true, another if false.

- COUNTIF(): Counts the number of cells in a range that meet a specific condition.

Basic Syntax for SUM and VLOOKUP:

- SUM():

Syntax: =SUM(A1:A10)

This adds all the numbers in cells A1 through A10.

- VLOOKUP():

Syntax: =VLOOKUP(lookup\_value, table\_array, col\_index\_num, [range\_lookup])

This searches for `lookup\_value` in the first column of the `table\_array`, and returns the value from the column specified by `col\_index\_num`. The `[range\_lookup]` is optional; if set to TRUE or omitted, it looks for an approximate match, and if set to FALSE, it looks for an exact match.

5. When would you use the SUBTOTAL function?

The `SUBTOTAL` function is useful when you need to perform calculations (like sum, average, count, etc.) on a subset of data, especially when that data is filtered. Unlike the regular SUM or AVERAGE functions, `SUBTOTAL` ignores hidden rows in a filtered list. For example, if you filter a list of sales transactions to show only transactions from a specific region, using `SUBTOTAL` will calculate totals only for the visible rows, leaving out the hidden ones. This makes it ideal for working with large datasets where you frequently filter data.

6. What is the syntax of the VLOOKUP function? Explain the terms in it?

The VLOOKUP function searches for a specific value in the leftmost column of a table and returns a value in the same row from a specified column. Here’s the syntax:

=VLOOKUP(lookup\_value, table\_array, col\_index\_num, [range\_lookup])

- lookup\_value: This is the value you want to search for in the first column of the table. It can be a number, text, or a cell reference.

- table\_array: This is the range of cells that contains the data you want to search. It must include the column with the lookup value and the columns with the results.

- col\_index\_num: This is the column number from which you want to return the value. The first column in the table is 1, the second is 2, and so on.

- [range\_lookup]: This is optional. If TRUE or omitted, Excel will look for an approximate match. If FALSE, Excel will search for an exact match.