1. What does DAX stand for?

   DAX – Data Analysis Expressions

2. Write a DAX formula to sum the Sales column.

   Sales Total = SUM(Sales[Sales])

3. What is the difference between a calculated column and a measure?

   A **calculated column** creates and stores a value for each row in a table, while a **measure** calculates results dynamically based on filters and context in a report.

4. Use the DIVIDE function to calculate Profit Margin (Profit/Sales).

   Profit Margin = DIVIDE(SUM(Sales[Sales])-SUM(Sales[Cost]),SUM(Sales[Sales]))

5. What does COUNTROWS() do in DAX?

   The COUNTROWS() function in DAX returns the number of rows in a table.

6. Create a measure: Total Profit that subtracts total cost from total sales

   Total Profit = SUM(Sales[Sales]) - SUM(Sales[Cost])

7. Write a measure to calculate Average Sales per Product.

   Average Sales per Product = SUM(Sales[Amount]) / DISTINCTCOUNT(Sales[ProductID])

8. Use IF() to tag products as "High Profit" if Profit > 1000.

   Product Tag = IF((Sales[Sales]-Sales[Cost]) > 1000,"High Profit")

9. What is a circular dependency error in a calculated column?

   A circular dependency error in a calculated column occurs when two or more columns depend on each other in a way that creates a loop, so DAX can't determine the correct order to calculate them.

10. Explain row context vs. filter context.

    Row context is about the current row in a table.Filter context is about the visible rows due to filters or slicers.

11. Write a measure to calculate YTD Sales using TOTALYTD().

    YTD = TOTALYTD(SUM(Sales[Sales]),'Calendar Table'[Date])

12. Create a dynamic measure that switches between Sales, Profit, and Margin.

    Selected Metric Value =

```
SWITCH(
  SELECTEDVALUE('Metric Selector'[Metric],"Sales"),
  "Sales", SUM(Sales[Sales]),
  "Profit", SUM(Sales[Sales]) - SUM(Sales[Cost]),
  "Margin",
    DIVIDE(
      SUM(Sales[Sales]) - SUM(Sales[Cost]),
      SUM(Sales[Sales])
    )
)
```

13. Optimize a slow DAX measure using variables (VAR).

```
Optimized Selected Metric Value =
VAR sales = SUM(Sales[Sales])
VAR cost = SUM(Sales[Cost])
VAR profit = sales - cost
VAR margin = DIVIDE(profit,sales)
RETURN
SWITCH(
  SELECTEDVALUE('Metric Selector'[Metric],"Sales"),
  "Sales", sales,
  "Profit", profit,
  "Margin", margin
)
```

14. Use CALCULATE() to override a filter

```
HighProfitSales = CALCULATE(SUM(Sales[Sales]),Sales[Product Tag] = "High Profit")
```

15. Write a measure that returns the highest sales amount

```
Highest Sale = MAX(Sales[Sales])
```