A. DETAILED GUIDELINES

1. *Part 1: Theories*

- **Information technology** focuses on (1) business skills and the use of technology to make decisions; (2) the selection, integration, and deployment of computing technology; and (3) technical skills, such as planning and deploying networking infrastructure, integrating databases, and building websites.

- **Data** is raw, unprocessed information, such as numbers, text, or images, used as input for computer systems to generate meaningful insights.
  For example: 5%, ISYS2056, RMIT, etc.

- **Information** is processed and organized data that provides meaning or context, facilitating understanding and decision-making.
  For example: ISYS2056 is the Business Information Systems Course.

- **Knowledge** is the meaningful understanding and application of information, derived from the interpretation and synthesis of data.
  For example: Business Information Systems is a core subject because its content is needed by all areas of business.

- **Forms of business analytics:** Descriptive, Predictive, and Prescriptive.
  - ➢ *Descriptive Analytics:* focuses on summarizing historical data to provide insights into what has happened in a business. It involves reporting, scorecards and dashboards to describe past performance.
    For example: The highest sales figure at Hammer Vacuum Cleaners in 2013 in WA was achieved by Joan.
  - ➢ *Predictive Analytics:* involves the use of statistical algorithms and machine learning techniques to forecast future outcomes based on historical data patterns. It helps businesses anticipate trends and make proactive decisions.
    For example: Historical consumer behavior and emerging trends suggest that introducing a new line of eco-friendly vacuum cleaners in 2024 could lead to a substantial boost in sales for Hammer Vacuum Cleaners.
  - ➢ *Prescriptive Analytics:* goes beyond predicting future outcomes and suggests possible actions to optimize results. It provides recommendations for decision-makers on what actions to take to achieve desired outcomes.
    For example: Hammer Vacuum Cleaners recommends implementing targeted marketing strategies and promotions for the new eco-friendly vacuum cleaner line in 2024 to

optimize sales performance based on predictive insights, consumer behavior, and market trends.

- News reporting agencies often want to find the public's opinion on current events. One particular agency is considering **two different strategies to collect this data** by collecting responses to online surveys. The two strategies are outlined as:
  - ➢ *Strategy One:* (1) Uses a database to store all of the survey responses, (2) Stores some data as text and some data as numbers; and (3) Will track extra information about the survey taker that won't be publicly visible.

    → allows the agency to conclude more about the public's opinion because it tracks extra metadata.
  - ➢ *Strategy Two:* (1) Uses a single spreadsheet to store all of the survey responses, (2) Stores all data as numbers; and (3) Will not track any information other than the survey responses.

    → makes it hard to find trends and access particular pieces of the data.
- **Usability heuristic for user interface design:**
  - ➢ *Aesthetics and minimalist design:* Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

2. *Part 2: Excel*
- **Minimum:** =MIN(number1, number 2, etc.)
  - ➢ In Microsoft Excel, the MIN function is a built-in function that is used to find the smallest value in a set of numbers.
- **Maximum:** =MAX(number1, number 2, etc.)
  - ➢ In Microsoft Excel, the MAX function is a built-in function that is used to find the largest value in a set of numbers.
- **Range names** refer to a single cell or group of cells.
- You can use the **Format Painter** multiple times before you turn it off by double-clicking the Format Painter button.
- **IF:** =IF(logical_test; value_if_true; value_if_false)
  - ➢ In Microsoft Excel, the "IF" function is a logical function that allows you to perform different actions based on whether a specified condition evaluates to true or false.
  - ➢ *logical_test:* This is the condition that you want to evaluate. If this condition is true, the function returns value_if_true; otherwise, it returns value_if_false.

- ➢ *value_if_true:* The value to be returned if the logical_test is true.
- ➢ *value_if_false*: The value to be returned if the logical_test is false.
- **VLOOKUP:** =VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])
  - ➢ The VLOOKUP function in Microsoft Excel is used to search for a value in the first column of a range and return a value in the same row from another column.
  - ➢ *lookup_value:* The value to be searched in the first column of the range.
  - ➢ *table_array:* The range of cells that contains the data. The first column of this range is searched for the lookup_value.
  - ➢ *col_index_num:* The column number in the table_array from which to retrieve the value.
  - ➢ *[range_lookup]:* An optional parameter that indicates whether the function should perform an exact match (FALSE or 0) or an approximate match (TRUE or 1). If omitted, it defaults to TRUE.
- **Pivot Tables:**
  - ➢ *Data Source:* Start with a dataset containing rows and columns of information. Each column should have a heading.
  - ➢ *Insert Pivot Table:*
  - ❖ Select your dataset.
  - ❖ In Excel, go to the "Insert" tab and choose "PivotTable." Confirm the range of your data and select where you want the pivot table to be placed (either in a new worksheet or an existing one).
  - ➢ *Pivot Table Fields:*
  - ❖ A new worksheet will appear with an empty grid and a list of fields on the right.
  - ❖ Drag and drop fields from your dataset into the "Rows" and "Values" areas.
  - ➢ *Row Labels:* Fields placed in the "Rows" area become the row labels in the pivot table. This organizes your data into a hierarchical structure.
  - ➢ *Values:* Fields placed in the "Values" area are summarized, often using functions like SUM, COUNT, AVERAGE, etc. This provides a way to aggregate and analyze numerical data.
  - ➢ *Column Labels:* You can also use fields in the "Columns" area to create additional levels of organization.
  - ➢ *Filter:* Add a field to the "Filter" area to allow users to filter the data based on specific criteria.
  - ➢ *Refresh Data:* If your underlying dataset changes, you can refresh the pivot table to reflect those changes.

3. *Part 3: Case study*

a. Create a chart from the "6-Year Revenues" worksheet and answer the following questions:

The company's executives want to know how the different products performed in the last 6 years in relation to each other. Create a chart to demonstrate the performance of Montana in the Channel Partners business segment from 2016 to 2021. Describe the following: What are the trends you noticed? (Descriptive analytics) How do you think the sales of Montana will evolve in 2022? (Predictive analytics).

- *(1): Create a Chart:*
  - ➢ Open the "6-Year Revenues" worksheet.
  - ➢ Identify the relevant data for the Montana product in the Channel Partners business segment for the years 2016 to 2021.
  - ➢ Select the data.
  - ➢ Navigate to the "Insert" tab in Excel.
  - ➢ Choose the appropriate chart type, such as a line chart or bar chart, that effectively represents the performance over the years.
  - ➢ Label the chart appropriately, including the product name and business segment.
- *(2): Descriptive Analytics - Trends:*

Explanation:
  - ➢ Observe the trends in the chart over the 2016 to 2021 period.
  - ➢ Look for patterns, increases, decreases, or any significant fluctuations in the revenue for Montana in the Channel Partners business segment.
  - ➢ Describe the trends you observe. For example, did the revenue increase steadily, fluctuate, or show any particular pattern?
- *(3) Predictive Analytics - Sales Evolution in 2022:*

Explanation:
  - ➢ Based on the trends observed in the chart, make an informed prediction for the sales of Montana in the Channel Partners business segment for 2022.

  - ➢ Consider factors like historical performance, external market conditions, or any known upcoming changes in the business environment.

Example:

Predict the sales figures for Montana in the Channel Partners business segment for 2022, by examining historical performance trends depicted in the chart and considering the impact of recent economic changes.

- Historical Performance: The chart reveals a consistent upward trend in Montana's sales over the past five years. Notably, a compound annual growth rate (CAGR) of approximately 5% has been observed. This steady growth indicates a robust market position and effective sales strategies within the Channel Partners segment.
- Economic Changes: 2022 has been marked by significant economic changes, including fluctuations in market demand and supply chain disruptions due to global events. These changes have impacted consumer spending and business investments across various sectors.

Combining the historical data with current economic conditions, a prediction can be made. While the historical trend suggests a potential for continued growth, economic uncertainties may temper this. Therefore, a conservative estimate would be a growth rate slightly below the historical average, at around 3-4% for 2022.

> ➢ Clearly state the rationale for your prediction. For example, if there has been a consistent upward trend, you might predict a continued increase, or if there are fluctuations, explain the factors contributing to them.

b. Through the Covid-19 pandemic, many businesses struggled to remain open or even survive, but the car industry continued to grow through the years. Write a short essay (about 100 words) to discuss two reasons why the car industry has been growing during the pandemic and propose one recommendation for Mickey's Car Parts company to capture this growing trend and stay competitive.

- *Introduction: (Approx. 20 words)*
  > ➢ Briefly acknowledge the unique circumstances of the Covid-19 pandemic.
  > ➢ Highlight the surprising growth of the car industry during this period.

Example:

The COVID-19 pandemic, a landmark event in recent history, profoundly affected society's economy, politics, culture, and technology. It forced a shift to remote working due to government-imposed lockdowns, challenging companies and employees in communication, collaboration, and performance management. Amidst these disruptions, a notable development was the unexpected growth in the automobile industry. After an initial decline, the industry saw a significant recovery. In the U.S., for

instance, auto sales rebounded to an annual rate of over 18 million units by late 2020, as reported by the Bureau of Economic Analysis. This surge was driven by increased demand for personal vehicles, spurred by public transportation safety concerns and attractive financing options. This period highlighted not only the challenges brought by the pandemic but also the resilience and adaptability of industries like the automotive sector, which managed to thrive despite the odds.

- ● ***Reason 1: Increased Demand for Private Transportation (Approx. 30 words)***
  - ➢ Explain how safety concerns during the pandemic led to a rise in demand for private transportation.
  - ➢ Mention any statistics or trends that support this observation.

<u>Example:</u>

Amidst COVID-19, safety fears about public transport's close spaces and shared surfaces spurred a surge in private vehicle demand, as people sought safer, more controlled travel options.

McKinsey & Company reported a dramatic decline in public transit use during the pandemic, with some cities experiencing a 70-90% drop in ridership. Concurrently, the automobile industry witnessed a resurgence. In the United States, for instance, the Bureau of Economic Analysis noted that auto sales recovered to an annual rate of over 18 million units by late 2020. This rebound was also accompanied by a rise in first-time car buyers and a booming used car market, indicating a broad shift towards private vehicle ownership.

- ● ***Reason 2: Shift Towards Local Manufacturers (Approx. 30 words)***
  - ➢ Discuss how disruptions in global supply chains influenced consumers to favor local car manufacturers.
  - ➢ Provide examples or evidence supporting the trend of supporting local businesses.

Example

Global supply chain disruptions led to delays, increased costs, and unpredictability in imported cars, causing consumers to favor local manufacturers for faster, cost-effective options and to support the local economy.

For instance, in countries like China and India, local brands like Geely, Tata Motors, and Mahindra have seen a rise in sales. Consumers prefer these brands due to their quicker delivery times and more affordable pricing.

- - Tata Motors registered a remarkable increase in sales, with a 67% rise in FY22, reaching 372,000 units. This growth is particularly noteworthy in the context of ongoing supply challenges exacerbated by external factors like the war in Ukraine and China's COVID lockdowns.

- Geely Auto reported an 8% year-on-year increase in sales, selling 1,432,988 units in 2022. This growth reflects the brand's resilience and adaptability in a challenging global environment.
- Mahindra also enjoyed a significant boost in sales. In the 2021-22 period, it reported a year-on-year growth of 44%, with nearly 2.26 lakh units sold. This growth was supported by the launch of new models like the XUV700 and sustained demand for other popular models like the Thar and Bolero.

- ***Recommendation for Mickey's Car Parts: Enhancing Online Presence (Approx. 20 words)***
  - ➢ Suggest that Mickey's Car Parts should invest in improving its online presence and e-commerce capabilities.
  - ➢ Emphasize the importance of providing a seamless and efficient online buying experience.

Example:

Mickey's Car Parts should invest in enhancing its online presence and e-commerce capabilities, A seamless, user-friendly online experience caters to the growing preference for digital transactions, ensuring convenience and efficiency. This strategy not only broadens the customer base but also strengthens brand loyalty. By integrating advanced e-commerce features, the company can stay competitive, adapt to changing consumer behaviors, and capitalize on the potential for increased sales and market reach, ensuring long-term business success in a rapidly evolving digital landscape.

- ***Additional Recommendation: Emphasizing Safety Features (Approx. 20 words)***
  - ➢ Optionally propose highlighting safety features in marketing strategies to address pandemic-induced concerns and boost consumer confidence.
- ***Conclusion: (Approx. 20 words)***
  - ➢ Summarize the key points.
  - ➢ Conclude by emphasizing how these recommendations position Mickey's Car Parts to stay competitive in the growing automotive market.

Example:

Enhancing online and e-commerce capabilities positions Mickey's Car Parts competitively in the dynamic, expanding automotive market through improved customer engagement and reach.