Assignment 1

Q1: What are the four fundamental parts of a computer? Explain it with the help of a diagram.

Answer: The four fundamental parts are:

- **Input Unit:** Allows data entry (e.g., keyboard, mouse).
- **Output Unit:** Displays results (e.g., monitor, printer).
- **CPU (Central Processing Unit):** Executes instructions and processes data.
- **Memory Unit:** Stores data temporarily (RAM) or permanently (Hard Disk).

Q2: Discuss the classification of computers based on size and capacity.

Answer: Computers are classified as:

- **Microcomputers:** Small, for personal use (e.g., PCs).
- **Minicomputers:** Medium-sized, used by small businesses.
- **Mainframe Computers:** Large, used by large organizations for bulk data processing.
- **Supercomputers:** High capacity, used for complex computations.

Q3: What is the meaning of computer generation? How many Computer Generations are defined? What technologies were/are used?

Answer: Computer generations describe the evolution of technology:

- **1st Generation:** Vacuum tubes.
- **2nd Generation:** Transistors.
- **3rd Generation:** Integrated Circuits.
- **4th Generation:** Microprocessors.
- **5th Generation:** Artificial intelligence (ongoing).

Q4: Differentiate between Volatile & Non-Volatile memories.

Answer:

- Volatile Memory: Requires power to retain data (e.g., RAM).
- Non-Volatile Memory: Retains data without power (e.g., Hard Disk).

Q5: Distinguish among system software, application software, and open-source software based on their features.

Answer:

- **System Software:** Manages hardware (e.g., OS).

- **Application Software:** Helps users perform tasks (e.g., MS Word).
- **Open-Source Software:** Source code available publicly for modification.

Q6 a) Create a file in MS-Word to insert a paragraph about yourself and save it with the filename "yourself." Describe all steps involved.

Answer:

1. Open MS Word: Start MS Word by searching for it in the Start menu or selecting it from your applications.

2. Insert Paragraph: Click on the blank page and start typing a paragraph about yourself. Write a few sentences describing your background, interests, or any other information you'd like to include.

3. Save the Document:

- Click on "File" in the upper-left corner.
- Select "Save As."
- Choose the location where you want to save the file.
- Enter the filename "yourself" in the file name field.
- Click "Save" to store the file.

Q6 b) Write steps regarding the following actions:

To change the font style:

- Select the text you want to format.
- Go to the "Home" tab in the toolbar.
- Click on the font dropdown menu and choose your preferred font style.

To change the font size:

- Select the text.
- In the "Home" tab, locate the font size dropdown.
- Choose the font size you want.

To change the font color:

- Select the text.
- Click on the "Font Color" icon (A with color bar) in the "Home" tab.
- Select the color you want.

To highlight text (e.g., in yellow):

- Select the text that reads "need to get IMS's address."
- Click on the "Text Highlight Color" icon in the "Home" tab.
- Choose yellow from the dropdown to highlight the text.

Q7: Create a file in MS-Word for the given document and save it with the filename 'MS word.' Describe all steps involved.

Answer:

1. **Open MS Word:** Open a new document in MS Word.
2. **Enter Document Content:** Type the text and structure the document as specified in the question.
3. **Formatting:** Apply any specific formatting, such as headings, bold, italics, etc., as needed.
4. **Save the Document:**
    - Go to "File" > "Save As."
    - Choose a location and enter 'MS word' as the file name.
    - Click "Save."

Q8: Create a file in MS-Word for the following document and save it with the filename 'equations.' Describe all steps involved.

Answer:

1. **Open MS Word:** Create a new document in MS Word.
2. **Insert Text:** Type any introductory text or details as specified.
3. **Insert Equations:**
    - Go to the "Insert" tab.
    - Click on "Equation" (found in the Symbols group).
    - You can either type your equation or use pre-defined templates for common equations.
4. **Save the Document:**
    - Select "File" > "Save As."
    - Enter 'equations' as the filename.
    - Click "Save."

Q9: Create a file in MS-Word to convert highlighted text to a table and save it as 'text to table.' Describe all steps involved.

Answer:

1. **Open MS Word:** Open a new document and type or paste the highlighted text.

2. Select and Convert Text to Table:

- Highlight the text you want to convert.
- Go to the "Insert" tab, then click "Table."
- Select "Convert Text to Table."
- Choose the appropriate settings for columns and rows (Word will usually auto-detect based on tabs or commas)

3. Save the Document:

- Click "File" > "Save As."

- Enter ‘text to table’ as the filename.

- Click "Save."

Q10: Create an MS-Word file to insert a table in the document. Describe all steps involved.

Answer:

1. Open MS Word: Start a new document.

2. Insert Table:

- Go to the "Insert" tab.

- Click on "Table" and choose the number of rows and columns you need.

- Enter data into each cell of the table as per your requirements.

3. Save the Document:

- Select "File" > "Save As."

- Name the file appropriately.

- Click "Save."

Q11: Create a worksheet in MS-Excel and save it with the name 'book1.'

Answer:

1. Open MS Excel: Open a new Excel workbook.

2. Enter Data: Enter the data required for the worksheet. For example, you may need to create columns for various items (e.g., names, scores, etc.).

3. Save the Workbook:

- Click on "File" > "Save As."

- Name the file as 'book1' and choose a location.

- Click "Save."

Q12: Calculate the following in range (C2:C11):

- Sum: Use `=SUM (C2:C11) `.

- Average: Use `=AVERAGE (C2:C11) `.

- Highest: Use `=MAX (C2:C11) `.

- Minimum: Use `=MIN (C2:C11) `.

Q13 a) Describe steps to modify columns and rows in Excel:

- Modify Column Width:

1. Select the column(s) you want to resize.
2. Right-click on the column header.
3. Choose "Column Width" and enter the desired width.

- Modify Row Height:

1. Select the row(s) you want to resize.
2. Right-click on the row number.
3. Choose "Row Height" and enter the desired height.

- Delete Rows and Columns:

1. Select the row or column to delete.
2. Right-click and select "Delete" to remove it from the worksheet.

Q13 b) Describe the following terms in the worksheet:

- Absolute Reference: In Excel, an absolute reference does not change when copied (e.g., `$A$1`).

- Relative Reference: Adjusts when copied to another cell (e.g., `A1`).

- Cell Address: Refers to a specific cell location (e.g., B2).

Q14 a) What tools are available to customize a PowerPoint presentation?

Answer: PowerPoint offers various customization tools:

- **Themes and Templates:** Pre-designed slide layouts.
- **Transitions:** Animated transitions between slides.
- **Animations:** Effects applied to objects within slides.
- **Slide Layouts and Backgrounds:** Adjust layouts and apply background styles.
- **SmartArt and Charts:** Visual tools for representing information.

Q14 b) Steps to create a PowerPoint presentation:

- **Open a Blank Presentation:** Start PowerPoint > Select "Blank Presentation."
- **Save as Lab1.pptx:** Go to "File" > "Save As" and save with the name 'Lab1.pptx.'
- **Add Title:**
  - Click on the title placeholder on the first slide.
  - Type your college's name.
- **Add Subtitle:**
  - Click on the subtitle placeholder and enter your first and last name.
- **Add a New Slide:**
  - Go to the "Home" tab, click on "New Slide," and select "Title and Content."

Q15: Steps for creating PowerPoint slides demonstrating your skills:

- **Create Title Slide & Bullet List:** Add a title slide with a bulleted list.
- **Insert Excel Sheet:** Go to "Insert" > "Object" > Select "Excel" to embed a sheet**.**
- **Add Clip Art & Text:** Use the "Insert" tab to add images or clip art and text boxes.
- **Apply Slide Show Effects:** Go to the "Transitions" or "Animations" tabs to add effects between slides or animate content.

Q16: What is the difference between Machine Language and High-Level Language?

Answer:

- **Machine Language:** This is the lowest level of programming language, consisting of binary code (0s and 1s) directly understood by a computer's CPU. It is hardware-specific and difficult for humans to read and write.

- **High-Level Language:** This is a more abstract, user-friendly language that is closer to human language, such as Python, C++, or Java. It allows programmers to write instructions in a form that is easier to read, write, and maintain. High-level languages are translated into machine language using compilers or interpreters.

Q17: Discuss different data types of the C programming language.

Answer: In C, data types define the type and size of data a variable can hold. The main data types in C are:

- **int:** Stores integer values (whole numbers) without decimal points, e.g., 5, -20.
- **float:** Stores floating-point numbers (decimal values), e.g., 3.14, -2.5.
- **char:** Stores single characters, e.g., 'A', 'b'. It typically occupies 1 byte.
- **double:** Stores larger floating-point numbers with double precision, e.g., 3.141592. It has more precision than float.

Q18: Find the output of the following expressions.

a) X = 20/5*2+30-5

Answer: X = 33. (Explanation: 20/5 = 4, then 4*2 = 8, then 8+30 = 38, and 38-5 = 33.)

b) Y = 30 – (40/10+6) +10

Answer: Y = 24. (Explanation: 40/10 = 4, then 4+6 = 10, then 30-10 = 20, and 20+10 = 24.)

c) Z = 40*2/10-2+10

Answer: Z = 16. (Explanation: 40*2 = 80, then 80/10 = 8, then 8-2 = 6, and 6+10 = 16.)

Q19: Describe the syntax of the following statements.

- **a) If-else statement**
  - **Answer:** The if-else statement allows conditional execution based on whether a condition is true or false.

```
if (condition) {
    // Code to execute if condition is true
} else {
    // Code to execute if condition is false
}
```

- **b) for loop**
  - **Answer:** The for loop is used to repeat a block of code a specific number of times.

```
Copy code
for (initialization; condition; increment) {
```

```
    // Code to execute in each iteration
}
```

- **c) while loop**
  - **Answer:** The while loop repeats a block of code as long as a specified condition is true

```
while (condition) {
    // Code to execute in each iteration
}
```

- d) **do-while loop**
  - **Answer:** The do-while loop executes the code block at least once before checking the condition at the end of each iteration.

```
do {
    // Code to execute in each iteration
} while (condition);
```

Q20: Find the output of the following program segments.

- **a)**

```
#include <stdio.h>
int main ()
{
  int i;
  for (i = 1; i < 2; i++)
  {
      printf ("IMS Ghaziabad\n");
  }
}
```

  - **Answer:** The output is:

```
IMS Ghaziabad
```

Explanation: The for loop runs once because i starts at 1 and the loop condition is i < 2.

- **b)**

```
#include <stdio.h>
int main ()
{
  int i = 1;
  while (i <= 2)
  {
      printf ("IMS Ghaziabad\n");
      i = i + 1;
  }
}
```

  - **Answer:** The output is:

```
IMS Ghaziabad
IMS Ghaziabad
```

Explanation: The while loop runs twice as i takes values 1 and then 2 before the condition i <= 2 becomes false.

- **c)**

```
#include <stdio.h>
void main ()
{
  int a = 10, b = 100;
  if (a > b)
      printf ("Largest number is %d\n", a);
  else
      printf ("Largest number is %d\n", b);
}
```

  - **Answer:** The output is:

```
Largest number is 100
```

Explanation: The if condition a > b is false, so the else block executes, displaying 100 as the larger number.

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