

**Lab sheet #1****-Identification of the common laboratory glassware, pipettes and Equipment-****-Objective:**

- To be familiar with the most common biochemistry lab tools and equipment

**-Method and Results:****A) Identification of the common laboratory glassware:**

Write the type and final volume of glasswares that presented to you.

| Glassware number | Type of glassware | Final volume (capacity) |
|------------------|-------------------|-------------------------|
| 1                |                   |                         |
| 2                |                   |                         |
| 3                |                   |                         |
| 4                |                   |                         |
| 5                |                   |                         |

**B) Identification of the common laboratory pipettes:**

1. Examine the three pipettes placed on your laboratory bench.
2. Record their types and the volume of their smallest division.

|   | Type of pipette | Smallest division |
|---|-----------------|-------------------|
| A |                 |                   |
| B |                 |                   |
| C |                 |                   |

**C) Comparing between glassware accuracy:**

1. Place a beaker in the electronic balance, and record its weight.
2. Remove the beaker from the balance, and then add 5 ml of water using a graduated pipette (Mohr). Then record the weight.
3. Repeat the procedure by using a measuring cylinder this time.  
→ Alternatively, after placing the beaker press zero to remove the unwanted weight.

| Type of glassware  | Weight of beaker (g) | Weight of beaker + water (g) | Weight of water (g) |
|--------------------|----------------------|------------------------------|---------------------|
| Graduated pipette  |                      |                              |                     |
| Measuring cylinder |                      |                              |                     |

Which one is more accurate? .....

\* The weight of the water should be the same as its volume since the density of water equals one.

**D) pH meter:**

- 1- The pH meter is already **Calibrated**
- 2- Wash the electrode with distilled water and dry by tissue then put it into sample solution A then wash it again and place it in solution B → **Read pH.**

**Note:** After use the electrode, you should storage it in distilled water and never be allowed to dry out. If the electrode get dry it will required reactivation.

| Solution    | pH value | Neutral, acidic or basic |
|-------------|----------|--------------------------|
| Standard 4  |          |                          |
| Standard 7  |          |                          |
| Standard 10 |          |                          |
| Solution A  |          |                          |
| Solution B  |          |                          |

**E) Spectrophotometer:**

- 1- Adjust the spectrophotometer to zero using distilled water as blank in the cuvette.
- 2- Read the absorbance of standard solution and the solution of unknown concentration at **280 nm.**
- 3- Record your result.

| Solution                             | Absorbance at 280nm |
|--------------------------------------|---------------------|
| BSA standard solution (0.5 g/100 ml) |                     |
| Solution of Unknown concentration    |                     |

**Calculation:**

$$\begin{array}{l}
 C_{\text{standard}} \rightarrow A_{\text{standard}} \\
 C_{\text{unknown}} \rightarrow A_{\text{unknown}}
 \end{array}
 \longrightarrow
 C_{\text{unknown}} = \frac{C_{\text{standard}} \times A_{\text{unknown}}}{A_{\text{standard}}}$$

Where,  $C_{\text{standard}}$  = concentration of standard solution,  $C_{\text{unknown}}$  = concentration of unknown solution,  $A_{\text{standard}}$  = Absorbance of standard solution,  $A_{\text{unknown}}$  = Absorbance of unknown solution.

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