

**Report No. (10)**

**DETERMINATION THE MOLAR MASS OF AN UNKNOWN SUBSTANCE BY FREEZING  
POINT DEPRESSION**

Student Names: ..... Section No: .....

**The objective of the experiment:**

.....

**Results and calculations:**

|         | <b>m<sub>Solvent</sub> (g)</b> | <b>m<sub>Solute</sub> (g)</b> | <b>T<sub>solvent</sub> (°C)</b> | <b>T<sub>solution</sub> (°C)</b> | <b>ΔT<sub>f</sub>= T<sub>solvent</sub> – T<sub>solution</sub> (°C)</b> |
|---------|--------------------------------|-------------------------------|---------------------------------|----------------------------------|------------------------------------------------------------------------|
| Unknown |                                |                               | 0                               |                                  |                                                                        |
| Glucose |                                |                               |                                 |                                  |                                                                        |

**A. Determination of the molar mass of the Unknown substance ( $K_f = 1.86 \text{ }^\circ\text{C}\cdot\text{molal}^{-1}$ ).**

**B. Determination the  $K_f$ , water in Glucose solutions ( $M_w \text{ (glucose)} = 180.16 \text{ g/mol}$ )**