**Q1:** Below is a table prepared by a biochemistry student to construct a standard curve for protein analysis. The Bradford assay was used with bovine serum albumin (BSA, 0.1mg/ml ), as standard protein . Complete the table by filling in the weight of BSA in each tube.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Reagents | 1 | 2 | 3 | 4 | 5 | 6 |
| H2O (ml) | 1.0 | 0.9 | 0.8 | 0.6 | 0.2 | \_\_\_\_ |
| BSA volume (ml) | \_\_\_\_\_ | 0.1 | 0.2 | 0.4 | 0.8 | 1.0 |
| BSA weight (μg) | 0.0 | **?** | **?** | **?** | **?** | **?** |
| Bradford reagent (ml) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |

**Q2:** Prepare a linear dilution table, Assume that the stock solution is 2.0 M and you require 20ml diluted samples of the final concentration 1.66M , 1.33M , 1.0M , 0.66M , 0.33M , 0.00M.

**Table 2**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **dilutions** | **1** | **2** | **3** | **4** | **5** | **6** |
| Volume of stock (ml ) | ? | ? | ? | 6.66 | ? | 0.0 |
| Volume of H2O (ml) | ? | ? | ? | 13.34 | ? | 20 |
| Concentration ( M) | 1.66 | 1.33 | 1.0 | 0.66 | 0.33 | 0.0 |

**Q3**: Calculate the volume of solution X that has a weight of 22g, and a density = 1.62 g/ml.

**Q4:** Calculate the osmolarity of a solution prepared by dissolving 10g of CaCl2, and 3g of sucrose in distilled water to a total volume of 500ml and comment whether it is suitable as a suspension solution for RBC?

**Q5:** A solution of HCl which is w/w 36%, ρ = 1.18. Calculate its, Molarity, Normality, and Molality.