

**SEMESTER - VI**  
**PRACTICALS – ELECTIVES 1 & 2**

**Max. Hours: 30**  
**Course Code: U20/CHE/DSE/601-602/ P**  
**Corse: DSE -1&2**

**Hours per week: 3**  
**No. Of credits: 1**  
**Max. Marks: 50**

**COURSE OBJECTIVE:**

- To equip the students with required analytical skills for potentiometry, TLC and determination of partition coefficient.
- To understand the importance of developing green techniques for environmental sustainability.

**COURSE OUTCOMES:**

- CO 1 :** Acquire the skills to determine partition coefficient, perform TLC and potentiometric titrations.
- CO 2:** Synthesize a few compounds having important functional groups incorporating principles of green chemistry.

**Distribution Experiments:**

1. Distribution of partition coefficient of acetic acid in water and butanol.
2. Distribution of benzoic acid in benzene and water.

**Potentiometry:**

3. Titration of strong acid vs strong base (HCl vs NaOH)
4. Determination of redox potential of  $\text{Fe}^{+2}/\text{Fe}^{+3}$  by potentiometric titration of ferrous ammonium sulphate vs potassium dichromate.

**Thin Layer Chromatography :**

5. Determination of  $R_f$  values and identification of Organic compounds : preparation of and separation of 2,4-dinitrophenyl hydrazones of acetone and 2-butanone using toluene and light petroleum (40:60)
6. Separation of ortho & para-nitroaniline mixtures.

**Green Methods for the preparation of the following:**

7. Preparation of Acetanilide.
8. Preparation of p-Bromoacetanilide.
9. Preparation of Dihydropyrimidinone.

**Reference Books:**

1. Khosla, B. D.; Garg, V. C. & Gulati, A. Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi (2011).
2. Mendham, J, *Vogel's Quantitative Chemical Analysis*: Pearson, 2009.
3. Ahluwalia V.K, *Green Chemistry : Greener Alternatives For Synthetic Organic Transformation*: Narosa Publishing House
4. Ahluwalia V.K, *Green Chemistry : Environmentally Benign Reaction* : Ane Books Pvt.Ltd, 2006

**SEMESTER - VI****CHEMISTRY PRACTICALS – ELECTIVES 1 & 2****MODEL PRACTICAL PAPER****Course Code: U20/CHE/DSE/601-602/P****Max. Marks: 50****Credits: 1****Max. Time: 2 Hrs**

1. Write the principle and calculate the atom economy of the reaction involved in the green synthesis of the given compound **10M (CO2)**

2. Determine the partition coefficient of the given substance in the given solvent mixture **20M (CO1)**

**OR**

3. Determine the concentration of the given solution using potentiometric titration. You are provided with a solution of known concentration.

**OR**

4. Write the principle of TLC. Determine the  $R_f$  value and separate the mixture of the given substances by performing a TLC experiment.

5. Viva Voce **10M**

6. 4. Record + Attendance **10M**