SEMESTER -VI

ENVIRONMENTAL AND GREEN CHEMISTRY

PRACTICALS – ELECTIVES 1 & 2

Max. Hours: 30 **Hours per week: 3**
Course Code: U20/CHE/DSE/601-602/ P **No. Of credits: 1**
Course: DSE -1&2 **Max. Marks: 50**

COURSE OBJECTIVES:

- 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 Fe^{+2}/Fe^{+3} by potentionmetric titration of ferrous ammonium sulphate vs potassium dichromate.

Thin Layer Chromatography:

5. Determination of Rf 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.
    a. 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
    a. Transformation: Narosa Publishing House
4. Ahluwalia V.K ,Green Chemistry : Environmentally benign reaction: Ane books
    a. 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 **10 M**

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