 **PCTE** **INSTITUTE OF PHARMACY**

**PCTE Group of Institutes**

**Affiliated to PTU, Jalandhar**

**Approved by PCI & AICTE, New Delhi**

**COURSE MODULE**

**January (2014)**

**Subject**: Physical Chemistry Lab**Subject Code**: BSBT- 116

**Class**: B.Sc.Biotechnology **Total Practicals**: 11

**Semester**: II (2013 batch) **Practical**: 3hrs/week

**Instructor:** Simer Mann **Phone:** 09872633819

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**Aim**: The students would learn distributing laws for various solutions. They would also learn to determine surface tension and viscosity for various solutions etc.

**LIST OF PRACTICALS**

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| **S No.** | **Experiment** |
| 1. | Study of distribution law by iodine distribution between water and CCl4  Given standard solution Na2S2O3. |
| 2. | Study of distribution law of benzoic acid between benzene and water. |
| 3. | Determination of adsorption isotherm of oxalic acid on charcoal. |
| 4. | Surface tension: determination of surface tension of a given liquid by stalagmometer. |
| 5. | Determination of viscosity of a pure liquid (acetone, ethanol, propanol, butanol, glycol) (effect of hydrogen bonding on viscosity). |
| 6. | Refractometry: Determine refractive index of a given liquid as a criterion for its purity.  Benzene i.e., commercial benzene + (A.R.) acetone. |
| 7. | Polarimetry: Determine the %age composition of an optically active solution. |
| 8. | 8. Conductometry:a) Determination of cell constantb) Determination of specific and equivalent conductance of electrolyte (NaCl and HCl).c) Precipitation titration of Na2SO4vs BaCl2. d) Neutralization titrations NaOH vs HCl and NaOH vs CH3COOH. |
| 9. | a) pH of buffer solution.b) Acid-base titration HC1 vs NaOH.c) Determination of ionization constant of a week acid (CH3COOH) |
| 10 | Calorimetry:a) Determination of Heat of neutralizationi) Strong acid-strong baseii) Weak acid-strong base |
| 11 | Photometry:Verification of Lambert-Beer’s law for solution of CoCl2.5H2O (in water) and K2Cr2O7(in water). |

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| **S. No.** | **Modes of Assessment** | **Score** |
| 1. | Practical work in laboratory | 10 |
| 2. | Practical file and viva-voce | 10 |
| 3. | **MSE** | 20 |
|  | **Total** | **40** |

**Instruction for students:**

1. *The practical file must be neat and clean and covered.*
2. *Practicals must be carefully performed.*
3. *No student will be allowed without lab coat.*
4. *Late submission of file is not permissible and will attract minimum awards.*
5. *The viva for each practical will be compulsory.*
6. *The practical file should be checked one week before the final practical exam.*
7. *75%**attendance is mandatory, below this percentage; student will not be allowed to appear in the examination.*
8. *The student will record the details of practicals in the practical note book and get it checked every time from the instructor after the experiment has been completed.*