

# BOARD OF INTERMEDIATE EDUCATION: ANDHRA PRADESH: HYDERABAD

## INTERMEDIATE-I YEAR CHEMISTRY PRACTICALS SYLLABUS

(Effective from 2012-13)

Practical work is designed with a view to impart hands on skills to the young students and create awareness about scientific thinking scientific methods of analysis

### PRACTICALS SYLLABUS

#### A. Basic Laboratory Techniques

1. Cutting glass tube and glass rod
2. Bending a glass tube
3. Drawing out a glass jet
4. Boring a cork

#### B. Characterization and purification of chemical substances

1. Determination of melting point of an organic compound
2. Determination of boiling point of an organic compound
3. Crystallization of impure sample of anyone of the following: Alum, copper sulphate, Benzoic acid.

#### C. Experiments related to pH change

- (a) Anyone of the following experiments:  
Determination of pH of some solutions obtained from fruit juices, varied concentrations of the acids, bases and salts using pH paper or universal indicator.  
Comparing the pH of solutions of strong and weak acid of same concentration.  
Study the pH change in the titration of a strong base using universal indicator.
- b) Study of pH change by common-ion effect in case of weak acids and weak bases

#### D. Chemical equilibrium

- One of the following experiments:
- (a) Study the shift in equilibrium between ferric ions and thiocyanate ions by increasing/decreasing the concentration of either ions.
- (b) Study the shift in equilibrium between  $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$  and chloride ions by changing the concentration of either of the ions.

### **E. Quantitative estimation**

Using a chemical balance.

Preparation of standard solution of oxalic acid.

Determination of strength of a given solution of sodium hydroxide by titrating it against standard solution of oxalic acid.

Preparation of standard solution of sodium carbonate.

Determination of strength of a given solution of hydrochloric acid by titrating it against standard sodium carbonate solution.

### **F. Qualitative analysis**

Reactions of the following Anions and Cations

Anions :  $\text{CO}_3^{2-}$ ,  $\text{CH}_3\text{COO}^-$ ,  $\text{S}^{2-}$ ,  $\text{SO}_3^{2-}$ ,  $\text{NO}_2^-$ ,  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{NO}_3^-$ ,  $\text{SO}_4^{2-}$ ,  $\text{PO}_4^{3-}$

Cations :  $\text{Pb}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Al}^{3+}$ ,  $\text{Fe}^{2+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{NH}_4^+$

### **G. Detection of nitrogen, sulphur, Chlorine in an organic compound**

#### **PROJECT**

Scientific investigations involving laboratory testing and collecting information from other sources.

A Few suggested Projects

- Checking the bacterial contamination in drinking water by testing sulphide ion.
- Study of the methods of purification of water.
  - Testing the hardness, presence of iron, fluoride, chloride etc. depending upon the regional variation in drinking water and the study of causes of presences of these ions above permissible limit (if any).
- Investigation of the foaming capacity of different washing soaps and the effect of addition of sodium carbonate on them.
  - Study of the acidity of different samples of the tea leaves.
  - Determination of the rate of evaporation of different liquids.
  - Study of the effect of acids and bases on the tensile strength of fibers.
  - Analysis of fruit and vegetable juices for their acidity.