

## **Second Year B.Pharm ( III Semester )**

### **231T Physical Pharmaceutics-I**

#### **Students will able to Know**

- CO 1:** Derive Gibb's Phase rule, explain one, two & three component systems with its applications & consideration while designing of dosage form.
- CO 2:** Explain the process of solubilisation with factors affecting on solubility & elaborate the concept of partition coefficient with its application in pharmacy.
- CO 3:** Explain the term polymorphism & its importance in pre-formulation with examples, significance & detection techniques.
- CO 4:** Elaborate the concept of colligative properties with examples, their behavior, and methods for its determination & how to calculate molecular weight of non-volatile solute using colligative properties.

### **231P Physical Pharmaceutics-I**

#### **Students will able to Know**

- CO 1:** To construct ternary phase diagram for three-component system (Oil-Water-Surfactant) & identify the various areas for micro-emulsion, gel, & coarse emulsion.
- CO 2:** To determine Partition coefficient & effect of pH on the partition coefficient of benzoic acid between water & benzene.
- CO 3:** To determine saturation solubility, solubility in different solvents, effect of cosolvents, heat of solution & effect of temperature on solubility of given substance.
- CO 4:** To determine cell constant of conductivity cell, unknown concentration of given substance by using conductivity meter.

### **232T Pharmaceutical Microbiology**

#### **Students will able to Know**

- CO 1:** To study various structural features, biology, growth characteristics, isolation, identification, counting methods of microbes and its application to Pharmacy and to understand the cause, basic, sources of microbial spoilage and microbial contamination, microbial limit test.
- CO 2:** To acquire knowledge about various sterilization processes, its mechanism of action, preservation, disinfection preservative test, sterility test.

**CO 3:** To understand basic aspects of immunology, antigen, antibody, their reactions, hypersensitivity, vaccines, sera, its types and its manufacturing processes.

### **232P Pharmaceutical Microbiology**

#### **Students will able to Know**

**CO 1:** To understand the principle, construction and working of various instruments and perform their operation

**CO 2:** To prepare and sterilize nutrient media and to adopt the skills required for maintaining strictly aseptic conditions, handling inoculating loop, its sterilization, inoculation procedure and isolation of microbes by streak plate method, counting of microorganism by pour plate method.

**CO 3:** To study morphology of bacteria by staining procedure and its motility by Hanging drop technique

**CO 4:** To acquire knowledge about Sterility test, microbial assay, minimum inhibitory concentration.

### **233T Pharmaceutical Biochemistry**

#### **Students will able to Know**

**CO 1:** To understand the enzyme structures, functions, mechanism, application with it's relation to different biochemical process in cell metabolism.

**CO 2:** To acquire knowledge about chemistry, functions, classification, biological importance with applications of various bio-molecules like proteins, carbohydrates, lipids, nucleic acids and vitamins.

**CO 3:** To establish the correlation of metabolism of bio-molecules with electron transport chain and oxidative phosphorylation.

### **233P Pharmaceutical Biochemistry**

#### **Students will able to Know**

**CO 1:** To perform qualitative and quantitative chemical test for proteins, amino acids and carbohydrate.

**CO 2:** To demonstrate the separation, identification and characterization of protein from various samples like egg, milk etc and understand the principle behind the technique.

**CO 3:** To estimate quantity of ascorbic acid in a given sample and demonstrate action of salivary amylase on starch.

### **234T Pharmaceutical Organic Chemistry-III**

#### **Students will able to Know**

**CO 1:** Comprehend and explain the concept of stereochemistry, molecular representation and their significance in pharmaceutical sciences.

**CO 2:** Understand conformational Analysis and draw various conformational structures for different molecules and know the use of Physical and Spectral methods in conformational analysis

**CO 3:** Explain mechanism and applications of rearrangement of electron deficient & electron rich systems.

**CO 4:** Classify carbohydrates and understand reactions related to C5 and C6 sugars

**CO 5:** Explain the chemistry of amino acids, methods of preparation and underlying concepts like isoelectric point

### **234P Pharmaceutical Organic Chemistry-III**

#### **Students will able to Know**

**CO 1:** Explain and understand the principle behind various qualitative tests and analyze the given unknown binary organic compounds having different functional groups.

**CO 2:** Synthesize & recrystallize the organic compounds based on rearrangement reactions and should be able to demonstrate techniques such as filtration, precipitation etc

**CO 3:** Explain the principle and methodology involved in column chromatography and TLC.

### **235T Pharmacology-I**

#### **Students will able to Know**

**CO 1:** To understand the basic pharmacology along with its scope

**CO 2:** To understand the process of drug discovery and development

**CO 3:** Understand receptor drug receptor interaction drug toxicity, drug interaction and adverse drug reaction

### **235P Pharmacology-I**

#### **Students will able to Know**

**CO 1:** To understand the basic pharmacology along with its scope

**CO 2:** To understand the process of drug discovery and development

**CO 3:** To understand receptor drug receptor interaction drug toxicity, drug interaction and adverse drug reaction

### **236T Pharmacognosy and Phytochemistry-I**

#### **Students will able to Know**

**CO 1:** Primary metabolites of pharmaceutical and industrial utility (carbohydrates, lipids, proteins and enzymes, natural fibers)

**CO 2:** Secondary metabolites for medicinal utility (Glycosides, Tannins) and systematic pharmacognostic study

### **236P Pharmacognosy and Phytochemistry-I**

#### **Students will able to Know**

**CO 1:** Study skill of plant material, sectioning, staining, mounting, and focusing, also to decide staining reagent required for specific part of plant, preparation of permanent slides

**CO 2:** Identification of parts of plants by morphological and microscopical characters from theory and experiments

**CO 3:** Identification of unorganized crude drug and sample of powder of organized and unorganized crude drug using morphological, chemical, physical and microscopical characteristics

**CO 4:** Handle various equipments as per SOP's(spectrophotometer, simple/compound/digital microscope, Abbe's refractometer, M.P. apparatus) and know quality of material