

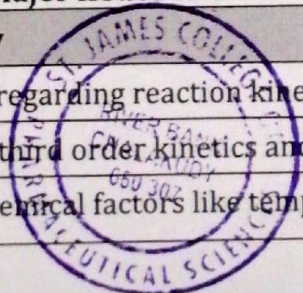
St.James College of Pharmaceutical Sciences St.James medical Academy River Bank, Chalakudy			
Programme:	B. Pharm	Sem.:	IV
Name of Course: (Subject)	PHYSICAL PHARMACEUTICS II	Course Code:	BP403T
Teaching faculty of the course	RINKU JAYAPRAKASH		

Summary of the Lecture Plan

Topic	Lectures	Hours
Drug Stability	Reaction kinetics	3
	factors influencing the chemical degradation of pharmaceutical product	3
	Stabilization of medicinal agent	2
	Accelerated stability testing in expiration dating of pharmaceutical dosage forms	2
Rheology	Types of systems	3
	Thixotropy	3
	viscosity	1
	Determination of viscosity	2
	Deformation of solids	1
Coarse dispersion:	Suspension,	3
	Physical stability of emulsions	2
	Emulsions	2
	Theories of emulsification	2
	Rheological properties	1
Surface and interfacial phenomenon	surface & interfacial tensions,	3
	spreading coefficient	2
	adsorption at liquid interfaces	2
	surface active agents	1
Colloidal dispersions	Classification of dispersed systems	3
	Optical, kinetic & electrical properties	2
	Effect of electrolytes	2

Major issues or Core aspects to be addressed/ covered:

Drug Stability	Dr. R. KRISHNAKUMAR BSc., M.Pharm., PhD Principal St. James College of Pharmaceutical Sciences St. James Medical Academy, CH Road River Bank, Chalakudy - 680 307
Basic concepts regarding reaction kinetics	
First, second & third order kinetics and determination of the order of reaction	
Physical and chemical factors like temperature, solvent, ionic strength, dielectric	



constant, specific & general acid base catalysis affecting reactions
Simple numerical problems of reaction kinetics
Stabilization of medicinal agents against common reactions like hydrolysis & oxidation
Accelerated stability testing methods & Photolytic degradation and its prevention

Rheology

Newtonian systems, law of flow, Non Newtonian systems & dilatant system

Thixotropy in formulations

Methods to determine viscosity, & about viscometers like capillary, falling Sphere, & rotational viscometers

Plastic and elastic deformation, Heckel equation,

Stress, Strain, Elastic Modulus

Coarse dispersion

Suspensions .advantage & disadvantages ,Interfacial properties of suspended particle

Settling in suspensions & formulation of suspension

Emulsion, advantages & disadvantages, identification tests & formulation

Micro emulsions & multiple emulsions & also about the preservation of emulsion

Different theories of emulsification

Rheological properties of emulsions

Surface and interfacial phenomenon.

Liquid interface surface & interfacial tensions, methods to determine the surface & interfacial tensions

surface free energy definition & derivations

spreading coefficient , definition , derivations, & applications

adsorption at liquid interfaces & at solid interfaces, HLB scale, detergency and the concept of solubilization

Colloidal dispersions

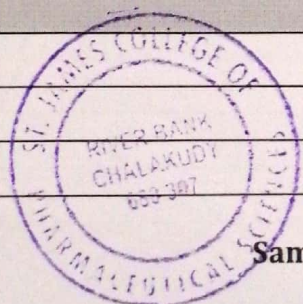
Colloids, definition, properties and classification

Optical properties

Kinetic properties & electrical properties

Effect of electrolytes, coacervation, peptization & protective action

Topic Title



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Sample Questions

Drug Stability

Derive the zero order reaction rate constant and its half life.

Derive the second order reaction rate constant and its half life.

What are the factors affecting degradation of pharmaceutical product?

Derive the first order reaction rate constant and its half life.

Note on accelerated stability studies

Describe about the stabilization of medicinal agents against hydrolysis & oxidation

Rheology

Explain about Newtonian & non newtonian systems

Note on dilatant systems

What are the different methods to determine viscosity

Note on thixotropy

Note on plastic & elastic deformation

Coarse dispersion

Explain about the formulation of suspension

Note on settling in suspension

What are the different identification tests for emulsion

Note on formulation of emulsions

What are the different theories of emulsification

Note on preservation of emulsion

Surface and interfacial phenomenon.

What are the different methods to determine surface & interfacial tension

Note on surface free energy

Note on spreading coefficient

Explain in detail about surface active agent & HLB scale

Colloidal dispersions

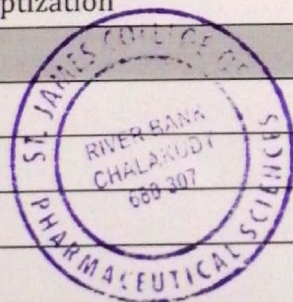
What are colloids, classify it and compare the properties

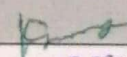
Note on kinetic properties of colloid

Describe in detail about the electrical & optical properties of colloids

Note on peptization

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