BHARATHIAR UNIVERSITY, COIMBATORE.
M. Sc., BIOCHEMISTRY DEGREE COURSE
(AFFILIATED COLLEGES)
(Effective from the academic Year 2011-2012)
SCHEME OF EXAMINATIONS – CBCS PATTERN

SEM	Subject and Paper	Inst. Hrs/ week	Examinations				Credit
			Dur.Hrs	CIA	Marks	Total Marks	
I	Paper-I Biopolymers	5	3	25	75	100	4
	Paper-II Analytical Biochemistry and Bioinformatics	5	3	25	75	100	4
	Paper-III Enzymes and Enzyme Technology	4	3	25	75	100	4
	Paper-IV Cellular Biochemistry	4	3	25	75	100	4
	Paper-V Plant Biochemistry and Biotechnology	4	3	25	75	100	4
	Practical-I Core Biochemistry Practical-I	5	-	-	-	-	-
	Elective – Paper I	3	3	25	75	100	4
II	Paper-VI Microbial Biochemistry	5	3	25	75	100	4
	Paper-VII Immunology	5	3	25	75	100	4
	Paper-VIII Advanced Clinical Biochemistry	5	3	25	75	100	4
	Paper-IX Molecular Biology	5	3	25	75	100	4
	Practical-I Core Biochemistry Practical-I	5	6	40	60	100	4
	Elective – Paper II	5	3	25	75	100	4
III	Paper-X Biostatistics	5	3	25	75	100	4
	Paper-XI Metabolism and Metabolic Regulation	4	3	25	75	100	4
	Paper-XII Genetic Engineering	5	3	25	75	100	4
	Paper-XIII Endocrinology	4	3	25	75	100	4
	Paper-XIV Pharmaceutical Chemistry and Neurochemistry	5	3	25	75	100	4
	Practical –II Core Biochemistry Practical-II	4	-	-	-	-	-
	Elective – Paper III	3	3	25	75	100	4
IV	Practical-II Core Biochemistry Practical-II	5	6	40	60	100	4
	Project Work	-	-	100	150	250*	10
	Elective – Practical/ Project	5	6	40	60	100*	4
	Total					2250	90

* For Project report - 80%; Viva-voce - 20% [Assessment of Internal marks should be based on Monthly assessment and report by the concerned guide and HOD]

* Includes 25 / 40% continuous internal assessment marks for theory and practical papers respectively.

List of Group Elective papers (Colleges can choose any one of the Group papers as electives)

Paper / Sem	GROUP A Elective - Cell Culture and Molecular Techniques	GROUP B Elective - Computational Molecular Biology	GROUP C Elective - Nanoscience
I	Plant Tissue Culture	Computational Molecular Biology	Fundamentals of Nanoscale Science
II	Animal Tissue Culture	Genomics	Nanomaterials Synthesis
III	Methods in Molecular Biology	Proteomics	Characterization and Application of Nano Materials
IV	Elective Practical	Elective Practical	Elective Project work

Note :

1. The syllabus for the above papers (except Paper XIV – Pharmaceutical Chemistry and Neurochemistry) be the same as prescribed for the academic year 2010-11.

2. The syllabus for the Paper XIV – Pharmaceutical Chemistry and Neurochemistry are furnished below.

SEMESTER- III PAPER-XIV

Subject Title : **PHARMACEUTICAL CHEMISTRY AND NEUROCHEMISTRY**

Course Number : **Number of Credit Hours: 5 (Five)**

Subject Description :

This course. deals with the drug, drug metabolism, drug receptors,drug tolerance, dependance , resistance. It also contains the effect of drugs on neuro system

Goals:

To enable the students to learn about various drugs with its effects and metabolism. Therapeutic monitoring of drugs.

Objectives:

After the completion of this course the student would have understood
Various routes of Drugs administration, its distribution, metabolism and excretion.
Genetically engineered drugs for AIDS and cancer and novel drug delivery systems
Effect of drugs on central nervous system and associated diseases

UNIT-I

Drugs – sources, dosage forms and routes of administration. Drugs – structural features and pharmacological activity, prodrug concept. Absorption, factors modifying drug absorption. Distribution, metabolism and excretion of drugs – phase I, II reactions, action of cytochrome P450.

Drug receptors – localization, types and subtypes, models and theories. G-protein coupled receptor and ion-channel linked receptors. Examples of drug-receptor interactions. Agonists and antagonists.

UNIT-II

Drug tolerance and drug dependence. Principles of basic pharmacokinetics. Adverse response to drugs, drug intolerance, pharmacogenetics, drug allergy, tachyphylaxis, drug abuse, vaccination against infection, factors modifying drug action and effect. Assay of drug potency: chemical, bioassay and immunoassay.

UNIT-III

Biotechnology and Pharmacy

Genetically engineered protein and peptide agents. Drug delivery systems : Non-conventional routes of administration, anti-AIDS drug development, oncogenes as targets for drugs, multidrug resistance, production of secondary metabolites by plant culture.

UNIT-IV

Mechanism of action of drugs used in therapy of

a) Respiratory system – cough, bronchial, asthma, pulmonary tuberculosis.

b) Antimicrobial drugs – sulfonamides, trimethoprim, penicillins, aminoglycosides and bacterial resistance.

c) Cancer chemotherapy

d) Thyroid and antithyroid drugs, insulin and oral antidiabetic drugs, antifertility and ovulation inducing drugs.

UNIT-V

Neurotransmitters :- Cholinergic transmission and receptors; adrenergic transmission and receptors; muscarinic receptors.

Non-steroidal and anti-inflammatory drugs; adrenergic blocking drugs; cholinergic blocking drugs; muscarinic blocking drugs; Parkinson's disease; Alzhemier's disease.

Neurodegenerative disorders – amylotropic, lateral sclerosis, senile dementia, Schizophrenia,Huntington's disease,

References:

1. The pharmacology, Volumes I and II – Goodman, Gilman
2. Basic and clinical pharmacology 7th edition – Katzung, Printice Hall, New Delhi
3. Pharmacology 3rd edition – Rang, Tale
4. Pharmacology and pharmacotherapeutics – Satoskar *et al.*, Popular Prakashar, Mumbai
5. Principles of medicinal chemistry – Foye, Waverks Pvt. Ltd. New Delhi
6. Burger's medicinal chemistry and drug discovery: principles and practice – Wolf, John Wiley
7. Molecular basis of inherited diseases – Davies, Read, IRL Press
8. Molecular biotechnology 2nd edition – Glick, Pasternak, Panima Publishers, 2002