BHARATHIAR UNIVERSITY, COIMBATORE.
M. Sc. BIOTECHNOLOGY DEGREE COURSE (AFFILIATED COLLEGES)
(For the candidates admitted from the academic Year 2015 - 2016 & onwards)
SCHEME OF EXAMINATIONS

Sem.	Study Components	Course title	Ins. Hrs/ week	Exam				Credit
				Dur.	CIA	Um. exam	Total	
I	Paper I	Molecular Biology and Genetics	4	3	25	75	100	4
I	Paper II	Biochemistry	5	3	25	75	100	4
I	Paper III	Applied Microbiology	4	3	25	75	100	4
I	Paper IV	Bioinstrumentation & Biostatistics	4	3	25	75	100	4
I	Practical I		5	-	-	-	-	-
I	Practical II		4	-	-	-	-	-
I	Elective paper I		4	3	25	75	100	4
II	Paper V	Immunology & Immunotechnology	5	3	25	75	100	4
II	Paper VI	Genetic Engineering	4	3	25	75	100	4
II	Paper VII	Plant Biotechnology	4	3	25	75	100	4
II	Paper VIII	Animal Biotechnology	4	3	25	75	100	4
II	Practical I		5	6	40	60	100	4
II	Practical II		4	6	40	60	100	4
II	Elective paper II		4	3	25	75	100	4
II	Industrial Training		-		-	-	-	-
III	Paper IX	Bioprocess Technology	4	3	25	75	100	4
III	Paper X	Pharmaceutical Biotechnology	4	3	25	75	100	4
III	Paper XI	Genomics & Proteomics	4	3	25	75	100	4
III	Paper XII	Bio-entrepreneurship	4	3	25	75	100	4
III	Practical III		5	-	-	-	-	-
III	Practical IV		5	-	-	-	-	-
III	Elective Paper III		4	3	25	75	100	4
III	Industrial Training		-	-	50*	-	50*	2
IV	Project		16	-	-	-	200**	8
IV	Practical III		5	6	40	60	100	4
IV	Practical IV		5	6	40	60	100	4
IV	Elective Paper IV		4	3	25	75	100	4
	Total						2250	90

*** Industrial Training has to be undergone during II semester vacation period. Mark shall be given based on training report and presentation**
**** For Project report – 160 marks, Viva-voce – 40 marks.**

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

Paper/ Sem	GROUP A	Group B
I	Occupational health and industrial safety	Plant system Physiology
II	Bioethics, biosafety and IPR	Animal System Physiology
III	Biotechniques	Developmental Biology
IV	Conservation biology	Evolution and behavior

PROJECT GUIDELINS

1) Project is pertain to the field of Biotechnology

2) Three review meetings should be conducted at regular intervals in the presence OF HOD and respective guide. The review should evaluate for a maximum of 30 marks.

Review	Maximum Marks
I Review	**30**
II Review	**30**
III Review	**30**

Dissertation evaluation by External Examiner	**70**

Viva-voce	**40**

Note :

The syllabus for the above papers (Except Practical III - Immunology, Animal Biotechnology And Pharmaceutical Biotechnology) be the same as prescribed for the academic year 2014-15. The revised Syllabus for the Practical III - **Immunology, Animal Biotechnology And Pharmaceutical Biotechnology are furnished below:**

PRACTICAL III - IMMUNOLOGY, ANIMAL BIOTECHNOLOGY AND PHARMACEUTICAL BIOTECHNOLOGY

IMMUNOLOGY

1. Demonstration of animal handling for experimental purposes, cervical dislocation, dissection of mice, cardiac puncture, blood sample preparation and its handling
2. Immunization and generation of antiserum in animals against antigen
3. Separation of IgG using affinity chromatography
4. Blood grouping and counting of blood cells
5. Antigen-Antibody Interactions: Radial Immunodiffusion,Ouchterlony double diffusion Precipitin ring test
6. Immunoelectrophoresis and rocket immunoelectrophoresis.
7. Antibody titre by ELISA
8. SDS-PAGE and Immunoblotting
9. Separation of mononuclear cells from Human peripheral blood

ANIMAL BIOTECHNOLOGY

10. Sterilization techniques
11. Preparation of culture media and sera
12. Preparation of primary cell culture
13. Trypsinizing and subculturing cells from a monolayer
14. Passaging cells in suspension culture
15. Determining cell umber and viability with a hemocytometer and Trypan blue staining
16. Preservation of cells

PHARMACEUTICAL BIOTECHNOLOGY

17. Various modes of administration of drugs: Intravenous, Intramuscular, Intraperitoneal, Intradermal
18. Acute toxicity testing of drugs
19. Determination of analgesic and anti-inflammatory activity of a compound
20. Spectrophotometric determination of Allantoin and Griseofulvin
21. Microbial analysis of pharamaceuticals (syrups)
22. Qualitative and Quantitative analysis of phytochemicals (any four)
23. Determination of antioxidant activity
    a) DPPH, b) SOD, c) H_2O_2
24. Determination of iron chelating activity of plant extract

REFERENCE

1. Animal Cell Culture: A Practical Approach- R. Ian Freshney, Published by IRL Press, 1986.
2. Practical Immunology - Leslie Hudson, F.C. Hay, Published by Blackwell Scientific Publications, 1981, Edition: 2.

3. Animal Cell Culture: A Practical Approach- John R. W. Masters Contributor John R. W. Master, Published by Oxford University Press, 2000, Edition: 3.
4. Practical Immunology- Leslie Hudson, Frank C. Hay, Published by Blackwell (Oxford), 1976.
5. Pharmaceutical Microbiology by W. B. Hugo & A. D. Russell Published by Blackwell scientific Publications.2009,Edition: 6.
6. Analytical Microbiology by Frederick Kavanagh Volume I & II. Published by Academic Press New York.
7. Quality control in the Pharmaceutical Industry by Murray S. Cooper Volume.II. Published by Academic Press New York.
8. Manual of Clinical Laboratory and Immunology by Noel R. Rose, Published by ASM Publications, 2002, Edition: 6.