BHARATHIAR UNIVERSITY: COIMBATORE

B.Sc., ZOOLOGY DEGREE COURSE
SCHEME OF EXAMINATION – CBCS PATTERN
(For the students admitted during the academic year 2010 – 2011 batch and onwards)

Part	Study Components	Course title	Ins. Hrs/ week	Examinations				Credit
				Dur. Hrs.	CIA	Marks	Total Marks	
	Semester I							
I	Language – I		6	3	25	75	100	4
II	English – I		6	3	25	75	100	4
III	**Core Paper I** – Biodiversity of Invertebrates		7	3	25	75	100	4
	Core practical I		3	-	-	-	-	-
	Allied A : Paper – I Chemistry/ Botany		4	3	20	55	75	3
	Allied Practical		2	-	-	-	-	-
IV	Environmental studies#		2	3	-	50	50	2
	Semester II							
I	Language – II		6	3	25	75	100	4
II	English – II		6	3	25	75	100	4
III	**Core paper II** – Biodiversity of Chordates		6	3	25	75	100	4
	Core Practical I		3	3	40	60	100	4
	Allied A : Paper – II Chemistry/ Botany		4	3	20	55	75	3
	Allied Practical		3	3	20	30	50	2
IV	Value Education - Human Rights #		2	3	-	50	50	2
	Semester III							
I	Language – III		6	3	25	75	100	4
II	English III		6	3	25	75	100	4
III	**Core Paper III** – Environmental Biology & Developmental Biology		6	3	25	75	100	4
	Core practical II		2	-	-	-	-	-
	Allied B: Paper – I Botany/ Chemistry		4	3	20	55	75	3
	Allied Practical		2	-	-	-	-	-
IV	Skill Based Subject I (Microbiology & Immunology Paper – I)		2	3	20	55	75	3
	Tamil @/ Advanced Tamil # (OR) Non – major elective – I (Yoga for Human Excellence)# / Women's Rights #		2	3	50		50	2
	Semester IV							
I	Language – IV		6	3	25	75	100	4
II	English – IV		6	3	25	75	100	4
III	**Core Paper IV** - Biostatistics, Bio informatics & Computer Application		5	3	25	75	100	4

	Core Practical – II	2	3	40	60	100	4
	Allied B : Paper II – Botany/ Chemistry	4	3	20	55	75	3
	Allied Practical	2	3	20	30	50	2
IV	Skill based Subject. Paper II (Microbiology & Immunology Paper – II)	3	3	20	55	75	3
	Tamil @ / Advanced Tamil # (OR) Non – major elective – II (General Awareness #)	2	3	50		50	2
	Semester V						
III	**Core paper V** - Molecular Biology, Genetics & Evolution	5	3	25	75	100	4
	Core Paper VI - Cell Biology, Biochemistry and Tools	5	3	25	75	100	4
	Core Paper VII - Bio Technology Paper – I	5	3	25	75	100	4
	Core Practical III	2	-	-	-	-	-
	Elective I (Without Practical) Paper I	4	3	20	55	75	3
	Elective II (With practical) Paper I	4	3	25	75	100	4
	Elective III	2	-	-	-	-	-
IV	Skill based subject. Paper III. (Microbiology & Immunology Paper – III)	3	3	20	55	75	3
	Semester VI						
III	**Core Paper VIII** - Physiology & Endocrinology	6	3	25	75	100	4
	Core Paper IX - Biotechnology Paper – II	6	3	25	75	100	4
	Core Practical III (Based on papers V, VI & VII)	2	3	40	60	100	4
	Core Practical IV (Based on papers VIII & IX)	2	3	40	60	100	4
	Elective I (without practical) Paper II	5	3	20	55	75	3
	Elective II (with practical) Paper II	5	3	40	60	100	4
	Elective III - Practical	2	3	40	60	100	4
IV	Skill Based Subject Paper IV (Practical based on papers of III, IV & V Semesters)	2	3	30	45	75	3
V	Extension Activities @	-	-	50	-	50	2
	Total					**3500**	**140**

@ No University Examinations. Only Continuous Internal Assessment (CIA)
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List of Elective papers (Colleges can choose one paper from each group)		
Elective – I Subjects without Practical	**A**	Human Genetic and Counseling – Paper I & II
	B	Pest and their control – Paper I & II
	C	Wild life management and conservation – Paper I & II
Elective – II Subjects with Practical	**A**	Pathology and clinical laboratory technique – Paper I & II
	B	Poultry science & Management – Paper I & II
	C	Sericulture – Paper I & II – Paper I & II
Elective - III	Practical for Elective II subject	

Note : The Syllabus for the above papers (except Core **Paper I – Biodiversity of Invertebrates**, Core **Paper IV – Environmental Biology & Developmental Biology**, Core **Practical III & IV**) be the same as prescribed for the academic year 2008-09. The syllabus for the Core Paper I – Biodiversity of Invertebrates, Core Paper IV – Environmental Biology & Developmental Biology, Core Practical III & IV are furnished below :

Semester – I core paper – I

BIODIVERSITY OF INVERTEBRATES

Objectives: 1. To understand Biodiversity, Habitat, Adaptation organization and taxonomic status of invertebrates.
2. Explaining the basic aspects of classification, structural and functional details of Invertebrates.

Unit I:

Protozoa : Classification up to orders and their characters with suitable Indian examples
Type study : Paramecium
General topic : Protozoan diseases and their control (Plasmodium Life cycle in detail)

Porifera : Classification up to orders and their characters with suitable Indian examples.
Type Study : Leucosolenia
General topic : Economic Importance of sponges.

Unit II:

Coelenterate **:** Classification up to order and their characters with suitable Indian examples.
Type Study : Obelia, Hydra
General topic : Coral reefs, Polymorphism in Coelenterates.

Unit III:

Helminthes **:** Classification up to order and their characters With suitable Indian examples.
Type Study : Taenia solium
General topic : Nematode parasite and their parasitic adaptation

Annelida : Classification up to order and their characters with suitable Indian examples.
Type Study : Megascolex
General topic : Filter feeding in polychaetes.

Unit IV: Arthropoda : Classification up to order and their distinguishing characters with suitable Indian examples.

Type Study : Cockroach
General topic : Crustacean larvae and their significance.
Detailed study of peripatus and affinities,
Economic importance of insects.

Unit V: Mollusca : Classification up to order and their Distinguishing characters with suitable Indian examples.

Type Study : Pila globosa
General topic : Economic importance of Mollusca.

Echinodermata : Classification up to order and their Distinguishing characters with suitable Indian examples.

Type Study : Star fish
General topic : Larval forms and their significance.

Text books for study:

1. Ekambaranatha Ayyar & T.N. Ananthakrishnan (1992)
Manual of Zoology Vol – I , part I & II
S.Viswanathan Pvt. Ltd. Chennai.
2.Jordan. E.L & Verma. P.S Invertebrate zoology
S.Chand & co. New Delhi.

Books for reference:

1. Barnes R.D (1992) Invertebrate Zoology IV Edn.
Holt saunders International Edn.
2. Barrington E.J.W (1979) Invertebrate structure and function 2nd Edition ELBS & Nelson.
3. Kotpal R.L, S.K.Agarwal, R.P.R.Khetarpal (1989)
Modern text book of zoology Rastogi Publications
4. Rajesh Karyakarle and Ajit Damle – 2005 Medical Parasitology Books & Allied (P) Ltd.
Kolkata.

Semester – III core paper – IV

ENVIRONMENTAL BIOLOGY & DEVELOPMENTAL BIOLOGY

Objective: To understand the principles and applications of environmental biology and understanding the nature.

Unit I : **Habitat Study :** Abiotic Factors – Temperature, Water, Light,
Ecosystem : Pond as an ecosystem, Food chain, Food web.

Unit II : **Animal relationships :** Interspecific – Antagonism, symbiosis, Parasitism, Mutualism, commensalisms
Environmental Pollution: Air, Water and Noise pollution.

Unit III : **Gametogenesis –** Spermatogenesis – Oogenesis – Fertilization – Types of Eggs.

Unit IV: Cleavage and Gastrulation and morphogenetic movements on frog and chick.

Unit V: Organogenesis in frog, Regeneration in planaria.
Extra embryonic membranes in Chick, Placenta in mammals.

Environmental Biology

Text books for study:

1. Environmental biology by P.S.Verma,
   V.K. Agarwal S. Chand & Co. New Delhi.
2. Text book of Ecology & Animal Distribution by P.S. Verma.

Books for reference:

1. Odum E.P. Basic Ecology (1983) Saunders College Publishing's New York
2. Clarke. G;L (1954) Elements of Ecology, John wiley & Son Inc. New York.
3. Nanathakrishnan. T.N and S. Viswanathan Principles of Animal Ecology
4. Koromondy E.J. (1976) Concepts of Ecology – Meeven.

Developmental Biology

Books for Study:

1. Verma. S and Agarwal V.K (2000) Chordate Embryology S.Chand & Co. New Delhi.

Books for reference:

1. Balinsky. B.I (1981) An Introduction to Embryology S, Chand & Co. New Delhi.
2. Barrel. N.J., 1986 Developmental Biology Mc. Graw Hill, New Delhi.
3. Patten, B.M., (1958) Foundations of Embryology Mc. Graw Hill, New Delhi.
4. Saunders. J.W (1982) Developmental Biology – Pattern and Principles, Macmillan New York.
5. Principles of Embryology – Waddington.
6. Embryology by Brath.

Core Practical III
Based on core Papers V, VI, and VII

1) Blood grouping in man.
2) Chironomous larva – Giant Chromosomes.
3) Drosophila male and female.- Genetic importance
4) Homologous and analogous organs – Fore limbs and Hind limbs.
5) Qualitative estimation of carbohydrates, Protein and Lipids.
6) Quantitative estimation of Blood Glucose.
7) Compound microscope.
8) pH meter.
9) Centrifuge.
10) Colorimeter/ Spectrophotometer.
11) Plasmid (Any two)
12) Cosmid
13) Phagomid.

Core Practical IV
(Based on Core Papers VIII and IX)

Physiology

1. RBC and WBC count.
2. Cockroach – digestive enzymes.
3. Ciliary activity of Fresh water Mussel (Q_{10})
4. Oxygen consumption of Fresh water Fish.
5. Analysis of Excretory products – Ammonia, Urea and uric acid.
6. Haemin crystals.
7. Estimation of Hemoglobin.

Spotters

1. Kymograph.
2. T.S of Pituitary, Thyroid, Adrenal, Ovary and Testis.
3. Blood of Frog.
4. Haemoglobinometer.
5. RBC & WBC pipette.

Biotech

1.Isolation of DNA (Demonstration only)

2.Gram Staining

1. Spirulina 2. Yeast 3. Penicillin 4. Autoclave 5. Pressure cooker
6. Electrophoresis unit 7. Culture media 8. Stains 9. Azolla 10. WIDAL Kit
11. VDRL Kit 12. Mushroom seeds.