GOVT. D. B. GIRLS PG COLLEGE, RAIPUR

CHHATTISGAH

Afiliated

With

PT. RAVISHANKAR SHUKLA UNIVERSITY, RAIPUR

SYLLABUS
2020-21

UNIFIED SYLLABUS
FOR CHHTTISGARH UNIVERSITIES
SESSION
2020 – 2021, 2021 – 2022, 2022 - 2023
B.Sc. I, II, & III YEAR

B.Sc. III, ZOOLOGY (2020-2021)

Paper –I

ECOLOGY, ENVIRONMENTAL BIOLOGY: TOXICOLOGY; MICROBIOLOGY AND MEDICAL ZOOLOGY

(Paper code-0917)

M.M. 50

Unit: I (Ecology)

1. Aims and scopes of ecology
2. Major ecosystems of the world-Brief introduction
3. Population- Characteristics and regulation of densities
4. Communities and ecosystem
5. Bio-geo chemical cycles
6. Air & water pollution
7. Ecological succession

Unit: II (Environmental Biology)

1. Laws of limiting factor
2. Food chain in fresh water ecosystem
3. Energy flow in ecosystem- Trophic levels
4. Conservation of natural resources
5. Environmental impact assessment

Unit: III (Toxicology)

1. Definition of toxicity
2. Classification of toxicants
3. Principle of systematic toxicology
4. Toxic agents & their action-Metallic & inorganic agents
5. Animal poisons- snake venom, scorpion & bee poisoning
6. Food poisoning

Unit: IV (Microbiology)

1. General and applied microbiology
2. Microbiology of domestic water and sewage
3. Microbiology of milk & milk products
4. Industrial microbiology

Unit:V (Medical Zoology)

1. Brief introduction to pathogenic microorganisms, Ricketssia, Spirochaetes & Bacteria
2. Brief account of life history & pathogenicity of the following pathogens with reference to man: prophylaxis & treatment

(a) Pathogenic protozoans- Entamoeba, Trypanosome & Giardia
(b) Pathogenic helminthes- Schistosoma
(c) Nematode pathogenic parasites of man

3. Vector insects

B.Sc. III, ZOOLOGY (2020-2021)

Paper- II

GENETICS, CELL PHYSIOLOGY, BIOCHEMISTRY, BIOTECHNOLOGY AND BIOTECHNIQUES

(Paper code-0918)

M.M. 50

Unit: I (Genetics)

1. Linkage & linkage maps
2. Varieties of gene expression- multiple alleles; Lithogenesis, Pleiotropic Gene; Gene interaction; Epistasis
3. Sex chromosomes systems & sex linkage
4. Mutation & chromosomal alteration; meiotic consequences
5. Human genetics, chromosomal & single gene disorders (somatic cell genetics)

Unit: II (Cell Physiology)

1. General idea about pH & buffer
2. Transport across membrane- cell membrane; mitochondria and endoplasmic reticulum
3. Active transport & its mechanism; active transport in mitochondria & endoplasmic reticulum
4. Hydrolytic enzymes-their chemical nature, activation & specificity

Unit: III (Biochemistry)

1. Amino acids & peptides- Basic structure & biological function
2. Carbohydrates & its metabolism- Glycogenesis; Gluconeogenesis; Glycolysis; Glycogenolysis; Cosi-cycle
3. Lipid metabolism- Oxidation of glycerol; Oxidation of fatty acids
4. Protein metabolism- Deamination, transamination, transmethylation; Biosynthesis of protein

Unit: IV (Biotechnology)

1. Biotechnology- Scope & importance
2. Recombinant DNA & Gene cloning
3. Cloned genes & other tools of biotechnology
4. Applications of biotechnology in (i) Pharmaceutical industry (ii) Food processing industry

Unit: V (Biotechniques)

1. Principles & techniques about the faollowing:
   (i) pH meter
   (ii) Colorimeter
   (iii) Microscopy- Light microscopes, Phase contrast & Electron microscopes
   (iv) Centrifugation
   (v) Separation of biomolecules by chromatography & electrophoresis
   (vi) Histochemical methods of determination of protein, lipid & carbohydrates

B.Sc. III, ZOOLOGY (2020-2021)

PRACTICAL WORK

M.M. 50

The practical work in general shall be based on syllabus prescribed in theory. The candidates will be required to show knowledge of the following:

1. Estimation of population density, percentage frequency, relative density.
2. Analysis of producers and consumers in grassland.
3. Detection of gram-negative and gram-positive bacteria.
4. Blood group detection (A,B,AB,O)
5. R B C count.
6. W B C blood coagulation time
7. Preparation of hematin crystals from blood of rat
8. Observation of Drosophila, wild and mutant.
9. Chromatography-Paper or gel.
10. Colorimetric estimation of hemoglobin.
11. Mitosis in onion root tip.
12. Biochemical detection of Carbohydrate, Protein and Lipid.
13. Study of permanent slides of parasites, based on theory paper.
14. Working principles of pH meter, colorimeter, centrifuge and microscope.

Scheme of marks distribution **Time: 3:30hrs**

1. Spotting (5 spots)	10
2. Working principle of pH meter/microscope/centrifuge.	05
3. Grassland Ecosystem/ Population Density	05
4. Blood Exercise	10
5. Bacterial staining	05
6. Biochemical exercise/Mitosis in root tips	05
7. Viva	05
8. Sessional	05
TOTAL PRACTICAL MARKS	**50**

APPROVED BY THE BOARD OF STUDIES

NAME	IN THE CAPACITY OF	SIGNATURE
Prof. Ajit Hundet	Chairman	
Prof. Seema Gupta	V.C. Nominee	
Prof. V. K. Gupta	Principal's Nominee	
Prof. Maya Shedpure	Member	
Dr. K.K. Harris	Member	
Mrs. Priya Dewangan	Member	
Ms. Uma Gupta	Member	
Dr. Richa Tikariha	Member	
Ms (CR) M.Sc. III sem.	Member	

GOVT. D. B. GIRLS' P. G. COLLEGE, RAIPUR (C.G.)

SYLLABUS

M. Sc. ZOOLOGY

2020 - 2021, 2021 - 2022

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SYLLABUS FOR 2020 - 21, 2021 - 22

M. Sc. ZOOLOGY

Semester	Paper	Title	External marks	Internal marks	Credit
First JULY-DEC, 2020	I	Systematics zoology and Invertebrate zoology	80	20	4
	II	Tools & Techniques in Zoology	80	20	4
	III	Endocrinology-Comparative and Molecular	80	20	4
	IV	Gamete Biology and Reproduction Physiology	80	20	4
	LC-I	Lab Course I (Based on paper I & II)	80	20	2
	LC-II	Lab Course II (Based on paper III & IV)	80	20	2
Second JAN-JUNE, 2021	I	Molecular Biology and Biotechnology	80	20	4
	II	Environment Biology and Environment Physiology	80	20	4
	III	Immunology & Development Biology	80	20	4
	IV	Biostatistics and Computer Application	80	20	4
	LC-I	Lab Course I (Based on paper I & II)	80	20	2
	LC-II	Lab Course II (Based on paper III & IV)	80	20	2

Third JULY-DEC, 2021	I	Comparative Anatomy of Vertebrate	**80**	**20**	4
	II	Animal Behaviour	**80**	**20**	4
	III	Population Genetics and Evolution	**80**	**20**	4
	IV	Cytogenetics	**80**	**20**	4
	LC-I	Lab Course I (Based on paper I & II)	**80**	**20**	2
	LC-II	Lab Course II (Based on paper III & IV)	**80**	**20**	2
Fourth JAN-JUNE, 2022	I	Neurophysiology and Human Physiology	**80**	**20**	4
	II	Biochemistry and Metabolic regulation	**80**	**20**	4
	III	Fish (ichthyology) structure and function	**80**	20	4
	IV	Aquaculture and Fisheries	**80**	**20**	4
Total	LC-I	Lab Course I (Based on paper I & II)	**80**	**20**	2
	LC-II	Lab Course II (Based on paper III & IV)	**80**	**20**	2

* The respective teachers on each paper will ensure the internal evaluation by a class test and a seminar/ poster presentation of 20 marks for M. Sc. each and submit the foil and counter foil to the HOD by the end the activity.

** Lecture for each unit are 15