

Annexure No.	28 A
SCAA Dated	29.02.2008

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046

B.Sc., ADVANCED ZOOLOGY AND BIOTECHNOLOGY
WITH SERICULTURE AS VOCATIONAL SUBJECT

& Compulsory Diploma in Microbiology & Immunology

(For the students admitted during the Academic year 2007-2008 & onwards)

Semester System

(with effect from 2007-2008)

1. Eligibility for Admission to the Course

Candidate for admission to the first year of the UG degree course shall be required to have passed the higher secondary examination (Academic or Vocational) conducted by the Govt. of Tamil Nadu in the relevant subjects – Zoology / Biology or other examinations accepted as equivalent there to by the Syndicate, subject to such other conditions as may be prescribed therefor.

2. Duration of the Course

The course shall extend over a period of three years comprising of six semesters with two semesters in one academic year. There shall not be less than 90 working days for each semester. Examination shall be conducted at the end of every semester for the respective subjects.

3. Course of Study

The course of study for the UG degree courses of all branches shall consist of the following

a) Part - I

Tamil or any one of the following modern/classical languages i.e. Telugu, Kannada, Malayalam, Hindi, Sanskrit, French, German, Arabic & Urdu.

The subject shall be offered during the first four semesters with one examination at the end of each semester.

b) Part – II : English

The subject shall be offered during the first four semesters with one examination at the end of each semester.

During third semester part II English will be offered as communication skills.

c) Foundation Course

The Foundation course shall comprise of two stages as follows:

Foundation Course A : General Awareness (I & II semesters)

Foundation Course B : Environmental Studies (III & IV semesters)

1. The syllabus and scheme of examination for the foundation course A. General awareness shall be apportioned as follows.

From the printed material supplied by the University	-	75%
Current affairs & who is who?	-	25%

The current affairs cover current developments in all aspects of general knowledge which are not covered in the printed material on this subject issued by the University.

2. The Foundation course B shall comprise of only one paper which shall have Environmental Studies.

d) Part – III

Group A : Core subject – As prescribed in the scheme of examination.

Examination will be conducted in the core subjects at the end of every semester

Group B: allied subjects -2 subjects-4 papers

Examination shall be conducted in the allied subjects at the end of first four semesters.

Group C: application oriented subjects: 2 subjects – 4 papers

The application –oriented subjects shall be offered during the last two semesters of study viz., V and VI semesters. Examination shall be conducted in the subjects at the end of V & VI semesters.

Group D: field work/institutional training

Every student shall be required to undergo field work/institutional training, related to the application-oriented subject for a period of not less than 2 weeks, conveniently arranged during the course of 3rd year. The principal of the college and the head of the department shall issue a certificate to the effect that the student had satisfactorily undergone the field work/institutional training for the prescribed period.

Diploma Programme:

All the UG programmes shall offer compulsory diploma subjects and it shall be offered in four papers spread over each paper at the end of III, IV, V, & VI semesters.

e) Co-Curricular activities: NSS/NCC/Physical Education

Every student shall participate compulsorily for period of not less than two years (4 semesters) in any one of the above programmes.

The above activities shall be conducted outside the regular working hours of the college. The principal shall furnish a certificate regarding the student's performance in the respective field and shall grade the student in the five point scale as follows

- A-Exemplary
- B-very good
- C-good
- D-fair
- E-Satisfactory

This grading shall be incorporated in the mark sheet to be issued at the end of the appropriate semester (4th or 5th or 6th semester).

(Handicapped students who are unable to participate in any of the above activities shall be required to take a test in the theoretical aspects of any one of the above 3 field and be graded and certified accordingly).

4. Requirement to appear for the examinations

- a) a candidate will be permitted to appear for the university examinations for any semester if
 - i) He/she secures not less than 75% of attendance in the number of working days during the semester.
 - ii) He/she earns a progress certificate from the head of the institution, of having satisfactorily completed the course of study prescribed in the subjects as required by these regulations, and
 - iii) His/her conduct has been satisfactory.

Provided that it shall be open to the syndicate, or any authority delegated with such powers by the syndicate, to grant exemption to a candidate who has failed to earn 75% of the attendance prescribed, for valid reasons, subject to usual conditions.

- b) A candidate who has secured less than 65% but 55% and above attendance in any semester has to compensate the shortage in attendance in the subsequent semester besides, earning the required percentage of attendance in that semester and appear for both semester papers together at the end of the latter semester.
- c) A candidate who has secured less than 55% of attendance in any semester will not be permitted to appear for the regular examinations and to continue the study in the subsequent semester. He/she has to rejoin the semester in which the attendance is less than 55%
- d) A candidate who has secured less than 65% of attendance in the final semester has to compensate his/her attendance shortage in a manner as decided by the concerned head of the department after rejoining the same course.

5. Restrictions to appear for the examinations

- a) Any candidate having arrear paper(s) shall have the option to appear in any arrear paper along with the regular semester papers.
- b) "Candidates who fail in any of the papers in Part I, II & III of UG degree examinations shall complete the paper concerned within 5 years from the date of admission to the said course, and should they fail to do so, they shall take the examination in the texts/ revised syllabus prescribed for the immediate next batch of candidates. If there is no change in the texts/syllabus they shall appear for the examination in that paper with the syllabus in vogue until there is a change in the texts or syllabus. In the event of removal of that paper consequent to change of regulation and / or curriculum after 5 year period, the candidates shall have to take up an equivalent paper in the revised syllabus as suggested by the chairman and fulfill the requirements as per regulation/ curriculum for the award of the degree.

6. Medium of Instruction and examinations

The medium of instruction and examinations for the papers of Part I and II shall be the language concerned. For part III subjects other than modern languages, the medium of instruction shall be either Tamil or English and the medium of examinations is in

English/Tamil irrespective of the medium of instructions. For modern languages, the medium of instruction and examination will be in the languages concerned.

7. Submission of Record Note Books for practical examinations

Candidates appearing for practical examinations should submit bonafide Record Note Books prescribed for practical examinations, otherwise the candidates will not be permitted to appear for the practical examinations. However, in genuine cases where the students, who could not submit the record note books, they may be permitted to appear for the practical examinations, provided the concerned Head of the department from the institution of the candidate certified that the candidate has performed the experiments prescribed for the course. For such candidates who do not submit Record Books, zero (0) marks will be awarded for record note books.

8. Passing Minimum

- a) A candidate who secures not less than 40% of the total marks in any subject including the Diploma and Foundation courses (theory or Practical) in the University examination shall be declared to have passed the examination in the subject (theory or Practical).
- b) A candidate who passes the examination in all the subjects of Part I, II and III (including the Diploma and Foundation courses) shall be declared to have passed, the whole examination.

9. Improvement of Marks in the subjects already passed

Candidates desirous of improving the marks awarded in a passed subject in their first attempt shall reappear once within a period of subsequent two semesters. The improved marks shall be considered for classification but not for ranking. When there is no improvement, there shall not be any change in the original marks already awarded.

10. Classification of Successful candidates

- a) A candidate who passes all the Part III examinations in the First attempt within a period of three years securing 75% and above in the aggregate of Part III marks shall be declared to have passed B.A/ B.Sc./B.Com./B.B.M. degree examination in **First Class with Distinctions**
- b (i) A candidate who passes all the examinations in Part I or Part II or Part III or Diploma securing not less than 60 per cent of total marks for concerned part shall be declared to have passed that part in **First Class**
- (ii) A candidate who passed all the examinations in Part I or Part II or Part III or Diploma securing not less than 50 per cent but below 60 per cent of total marks for concerned part shall be declared to have passed that part in **Second Class**
- (iii) All other successful candidates shall be declared to have passed the Part I or Part II or Part III or Diploma examination in **Third Class**

11. Conferment of the Degree

No candidate shall be eligible for conferment of the Degree unless he / she

- i. has undergone the prescribed course of study for a period of not less than six semesters in an institution approved by/affiliated to the University or has been exempted from in the manner prescribed and has passed the examinations as have been prescribed therefor.
- ii. Has satisfactory participates in either NSS or NCC or Physical Education as evidenced by a certificate issued by the Principal of the institution.
- iii. Has successfully completed the prescribed Field Work/ Institutional Training as evidenced by certificate issued by the Principal of the College.

12. Ranking

A candidate who qualifies for the UG degree course passing all the examinations in the first attempt, within the minimum period prescribed for the course of study from the date of admission to the course and secures I or II class shall be eligible for ranking and such ranking will be confined to 10 % of the total number of candidates qualified in that particular branch of study, subject to a maximum of 10 ranks.

The improved marks will not be taken into consideration for ranking.

13. Additional Degree

Any candidate who wishes to obtain an additional UG degree not involving any practical shall be permitted to do so and such candidate shall join a college in the III year of the course and he/she will be permitted to appear for part III alone by granting exemption from appearing Part I, Part II and common allied subjects (if any), already passed by the candidate. And a candidate desirous to obtain an additional UG degree involving practical shall be [permitted to do so and such candidate shall join a college in the II year of the course and he/she be permitted to appear for Part III alone by granting exemption from appearing for Part I, Part II and the common allied subjects. If any, already passed. Such candidates should obtain exemption from the university by paying a fee of Rs.500/-.

14. Evening College

The above regulations shall be applicable for candidates undergoing the respective courses in Evening Colleges also.

15. Syllabus

The syllabus for various subjects shall be clearly demarcated into five viable units in each paper/subject.

16. Revision of Regulations and Curriculum

The above Regulation and Scheme of Examinations will be in vogue without any change for a minimum period of three years from the date of approval of the Regulations. The University may revise /amend/ change the Regulations and Scheme of Examinations, if found necessary.

17. Transitory Provision

Candidates who have undergone the Course of Study prior to the Academic Year 2007-2008 will be permitted to take the Examinations under those Regulations for a period of four years i.e. up to and inclusive of the Examination of April 2012 thereafter they will be permitted to take the Examination only under the Regulations in force at that time.

18. Question Papers

The Pattern of the question papers for all the subjects shall be as follows:

Maximum 100 Marks

Section A: Objective type of questions with no choice (20 Questions - 4 each from every unit)	10 X 1 = 10
Section B: Short answer questions of either/or type (10 Questions - 2 each from every unit)	5 X 6 = 30
Section C: Essay – Type questions of either/or type (5 Questions - 1 each from every unit)	5 X 12 = 60

Maximum 75 Marks

Section A: Objective type of questions with no choice (10 Questions - 4 each from every unit)	10 X 1 = 10
Section B: Short answer questions of either/or type (10 Questions - 2 each from every unit)	5 X 5 = 25
Section C: Essay – Type questions of either/or type (5 Questions - 1 each from every unit)	5 X 8 = 40

SCHEME OF EXAMINATION

Sem	Part	Subject and Paper	Instruc -tion Hrs /week	University Examinations	
				Dura- tion In Hrs	Max Marks
First	I	Language Paper I	6 Hrs	3	100
	II	English Paper I	6 Hrs	3	100
		Foundation Course	2 Hrs	-	-
	III	Gr.A core paper – I Biodiversity of Invertebrates – I	3 Hrs	3	100
		Gr.A core paper – II Biodiversity of Invertebrates – II	4 Hrs	3	100
		Core Practical – I	2 Hrs	-	-
		VO.S. Sericulture – Paper – I	5 Hrs	3	75
		General Sericulture and Soil Science Sericulture Practical	2 Hrs	-	-
Second	I	Language Paper – II	6 Hrs	3	100
	II	English Paper – II	6 Hrs	3	100
		Foundation Course – A (General Awareness)	2 Hrs	3	100
	III	Gr.A core paper – III Biodiversity of Chordates	5 Hrs	3	100
		Core Practical – I (Based on core subject I & II Semesters)	2 Hrs	3	100
		VO.S. Sericulture – Paper – II	7 Hrs	3	75
		Biology of Mulberry and silkworm			
		Sericulture Practical - I Based On Paper – I & II	2 Hrs	3	50
Third	I	Language Paper – III	6 Hrs	3 Hrs	100
	II	English Paper – III	6 Hrs	3 Hrs	100
		Foundation course – B	2 Hrs	-	-
	III	Gr.A core Paper IV – Environmental Biology	2 Hrs	3 Hrs	100
		Gr.A core Paper V – Developmental Biology	2 Hrs	3 Hrs	100
		Core Practical – II	2 Hrs	-	-
		VO.S. Sericulture – Paper – III	5 Hrs	3 Hrs	75
		Diseases and pests of silkworm and mulberry Sericulture Practical – II	2 Hrs	-	-
	Diploma course – Microbiology & Immunology Paper – I	3 Hrs	3 Hrs	100	

Sem	Part	Subject and Paper	Instruc -tion Hrs /week	University Examinations	
				Dura- tion In Hrs	Max Marks
Fourth	I	Language Paper – IV	6 Hrs	3 Hrs	100
	II	English Paper – IV	6 Hrs	3 Hrs	100
	III	Foundation course – B (Environmental science)	3 Hrs	2 Hrs	100
		Gr.A core paper VI – Biostatistics Bio informatics, Computer Application	2 Hrs	3 Hrs	100
		Core Practical – II Based on Core subjects III & IV semesters	2 Hrs	3	100
		VO.S. Sericulture – Paper – IV	7 Hrs	3	75
		Genetics and breeding of Mullberry and Silkworm			
		Sericulture Practical – II Based on Paper III & IV	2 Hrs	3	50
Diploma Course – Microbiology & Immunology Paper – II	3 Hrs	3	100		
Fifth	III	Gr.A core			
		Paper VII Molecular Biology Genetics & Evolution	5 Hrs	3	100
		Paper VIII – Cell Biology, Biochemistry and tools	5 Hrs	3	100
		Paper IX – Bio Technology paper – I	5 Hrs	3	100
		Core Practical – III	2 Hrs	-	-
		Gr.C Application oriented subject			
		Sub A – Paper I without Practical	4 Hrs	3	75
		Sericulture Paper – V	4 Hrs	3	75
Silkworm Seed Technology					
Sericulture Practical – III	2 Hrs	-	-		
Diploma course – Microbiology & Immunology Paper – III	3 Hrs	3	100		
Sixth	III	Gr.A.Core			
		Paper - X Physiology & Endocrinology	6 Hrs	3	100
		Paper - XI Biotechnology Paper – II	6 Hrs	3	100
		Core Practical – III Based on core subjects of V & VI semester	3 Hrs	3	100
		Gr.C Application oriented			
		Subject A without Practical	5 Hrs	3	75
		VO.S. Sericulture – Paper – VI	5 Hrs	3	75
		Sericulture Extension & Organization, Non- Mullberry Sericulture			
Sericulture Practical – III	2 Hrs	3	100		
Diploma Course Practical – based on papers of III, IV & V Semester	3 Hrs	3	100		

APPLICATION ORIENTED SUBJECT WITHOUT PRACTICAL

1. Human Biology and Genetic counseling (Syllabus No change)
 2. Pests and their control (Syllabus No change)
 3. Wild life management and conservation (Syllabus No change)
- (Any one of the above to be studied in V & VII Semester without Practical)

APPLICATION ORIENTED SUBJECT WITH PRACTICAL

- (1). Sericulture (Syllabus No change)
 - (2). Pathology and clinical laboratory technique
 - (3). Poultry science & Management (Syllabus No change)
- (Any one of the above to be studied in V & VII semester with practical)

B.Sc., Advanced Zoology and Biotechnology
WITH SERICULTURE AS VOCATIONAL SUBJECT
 (For the students admitted during the Academic year 2007-2008 & onwards)

Semester - I	Paper – I	General Sericulture and Soil Science
Semester - II	Paper – II	Biology of mulberry and Silkworm
Sericulture Practical - I		
Semester - III	Paper - III	Diseases & Pests of Silkworm and Mulberries
Semester – IV	Paper – IV	Genetics and Breeding of Mulberry and Silkworm
Sericulture Practical – II		
Semester – V	Paper – V	Silkworm seed Technology and Silk Technology
Semester – VI	Paper – VI	Sericulture Extn. and Organisation and Non-Mulberry Sericulture
Sericulture Practical – III		

BIO DIVERSITY OF INVERTEBRATES – I

(For the students admitted from the Academic year 2007-2008 and onwards)

- 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 upto orders and their characters with suitable Indian examples

Type study : Paramecium

General topic : Protozoan diseases and their control
(Plasmodium Life cycle in detail)

Unit – II Porifera : Classification upto orders and their characters with suitable Indian examples.

Type Study : Leucosolenia

General topic : Economic Importance of sponges

Unit – III Coelentrata : Classification upto order and their characters with suitable Indian examples.

Type Study : Obelia

General topic : Coral reefs

Unit – IV Helminthes : Classification upto orders and their characters with suitable Indian examples.

Type Study : Taenia solium

General topic : Nematode parasite and their parasitic adaptation

Unit – V Annelida : Classification upto orders and their characters with suitable Indian examples.

Type Study : Megascoclex

General topic : Filter feeding in polychaetes

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 (1982) 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 – I Group A core paper – II

BIO DIVERSITY OF INVERTEBRATES – II

(For the students admitted from the Academic year 2007-2008 and onwards)

- Unit – I** Arthropoda : Classification upto orders and their distinguishing characters with suitable Indian examples
- Type study : Prawn
- General topic : Crustacean larvae and their significance
- Unit – II** Arthropoda : Detailed study of peripatus and affinities
- General topic : Social life of insects, Economic importance of insects
- Unit – III** Mollusca : Classification upto order and their distinguishing characters with suitable Indian examples.
- Type Study : Fresh water mussell
- General topic : Torsion in Gastropods
- Unit – IV** Mollusca : Type study : Sepia

General topic : Economic importance of Mollusca

Unit – V Echinodermata : Classification upto orders and their distinguishing characters with suitable Indian examples.

Type Study : Starfish

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 (1982) 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 – II Group A core paper – III

BIO DIVERSITY OF CHORDATES

Objective : To discuss diversity, habitat, adaptations organization and taxonomic status of chordates.

Unit – I Prochordata : Characteristics and classification of prochordata upto order level

Type study : Amphioxus

General topic : Affinities of cyclostomata. Retrogressive metamorphosis of Ascidian

Pisces : Classification upto orderlevel

Type Study : Scoliodon

General Topic : Accessory respiratory organs in fishes, Evolutionary

- Unit – II** Amphibia : Characteristics and classification of amphibian upto order level
Type Study : Frog
General topic : Orgini of amphibian, Parental care in amphibia.
- Unit – III** Reptilia : Characteristics and classification of reptilia upto order level
Type Study : Calotes
General topic : Sphenodon as living fossil, Snakes of south India.
- Unit – IV** Aves : Characteristics and classification of Aves upto order level.
Type Study : Pigeon
General topic : Flight adaptation in birds, Migration in birds.
- Unit – V** Mammalia : Characteristics and classification of mammalian upto order level
Type Study : Rabbit
General topic : Adaptive radiation in mammals, Modification of Aortic arches in chordates.

Text books for study :

1. Ekambaranatha Ayyar & T.N.Ananthkrishnan (1995)
Amanual of Zoology Vol – II, (part I & II)
S.Viswanathan Pvt. Ltd. Chennai.
2. Jordan.E.L & P.S.Verma (2000) ‘Chordate Zoology’ S.Chand & Co New Delhi.

Books for reference :

1. New man H.H(1939)’The Phylum Chordata’ McMillan New York
2. DeBeer.G (1996) ‘Vertebrate Zoology’ – Sedgwick & Jackson Loudon
3. Young J.Z (1950) ‘The life of Vertebrates’ oxford University Press London

Methods & Media

1. Charts
2. Prepared slides
3. Preparation and staining of slides
4. Power poin presentations
5. CDs
6. Different channels of T.V. – Animal Planet, Discovery, National Geographic

CORE PRACTICAL – I, BASED ON C1, C2 AND C3

(For the students admitted from the Academic year 2007-2008 and onwards)

Objective : To illustrate the organization, relate structure and functions of Invertebrates & Chordates and to inculcate surgical skill.

Dissection : Cockroach : Digestive System, Nervous system reproductive system

Mounting : Cockroach : Mouth Parts

Chordate

Dissections Frog (or) Rat : Arterial system, Venous system V cranial nerves, Male and female urinogential system.

Mounting : Frog (or) Rat : Brain

Spotters :

1. Classify giving reasons : Paramecium, any coral, obelia Leech, Ascaris chiton, sea cucumber, Balanoglossus Teleost fish, Non-Poisonous snake / Poisonous snake, king fisher, bat.
2. Draw labeled sketches : T.S.of Ascaris, T.S.of Nereis T.S.of Planaria, T.S Thro Pharynx of amphioxus skull of frog.
3. Biological significance : Gemmules in sponges, Physalia, Limulus, Hippo campus, chamalleon, axolotyl larva, Nautilus.
4. Relate structure and function : Spicules of sponges, scolex of tapeworm, Nereis parapodium, carapace and plastron, placoid scales, quill feather, Electric organ – Narcine.
5. Write descriptive notes.

Larval forms of Echinodermate (Bipinnaria and auricularia), Lepas/Balanus, Larvae of crustacean – Nauplius & Zoea – Draco, Cobra / Krait, Limb Skeleton of Bird, Bat.

Record of the work done in laboratory must be submitted.

Books for reference :

1. Lal S.S (2004) A.Text book of Practical Zoology Invertebrate – Rastogi Publication, Mecrut.
2. Lal S.S (2004) A Text book of practical Zoology Vertebrates – Rastogi Publication, Mecrut.

Semester – III Group A core paper – IV

ENVIRONMENTAL BIOLOGY

(For the students admitted from the Academic year 2007-2008 and onwards)

- Objective :** To understand the principles and applications of environmental biology and understanding the nature.
- Unit – I** Habitat Study : Abiotic Factors – Temperature, Water, Light, Soil in pond and sea
- Unit – II** Population Study : Definition, Natality, Mortality growth form.
- Unit – III** Animal communities, Structure, growth, stratification, ecological succession, ecological niche.
- Unit – IV** Animal relationships - Interspecific – Antagonism, symbiosis, Parasitism, Mutualism, commensalisms
- Unit – V** Aquaculture, fish management is marine water food production, potential and ocean farming.

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 V.K.Agarwal S.Chand & Co. New Delhi.

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. Ananthkrishnan.T.N and S.Viswanathan Principles of Animal Ecology
4. Koromondy E.J.(1976) Concepts of Ecology – Meeven.

Semester – III Group A. core paper – V

DEVELOPMENTAL BIOLOGY

(For the students admitted from the Academic year 2007-2008 and onwards)

- Objective :**
1. Understanding the basic concepts of embryology
 2. Analyzing the mechanism of organogenesis
 3. Getting an exposure to the experimental aspects of Embryology.

- Unit – I** Gametogenesis – Spermatogenesis – Oogenesis – Fertilization
- Unit – II** Types of Eggs, Pattern of cleavage & Blastulation in Frog and chick.
- Unit – III** Gastrulation, morphogenetic movement in frog and chick
- Unit – IV** Organogenesis (Eye and Heart) in frog and chick.
- Unit – V** Regeneration – Definition – Types, Human Reproduction puberty, Menstrual cycle. Menopause, Pregnancy and related problems parturition and lactation.

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. Berrill.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.

Semester – IV Group A. core paper – VI

BIOSTATISTICS, BIOINFORMATICS AND COMPUTER APPLICATION

(For the students admitted from the Academic year 2007-2008 and onwards)

- Objective :** To understand the basic principles and applications of Biostatistics, Bioinformatics & Computers
- Unit – I** Data : Methods of collection, Tabulation and graphic representation, Frequency distribution and frequency graph.
- Unit – II** Arithmetic mean, Median, Mode
- Unit – III** Standard deviation and standard error students ‘t’ test, chi-square test
- Unit – IV** Bioinformatics – Definition, Scope – Databases – Protein – DNA data base
- Unit – V** Definition of Computer – basic components input output devices, CPU, Memory and its types Brief account on packages – M.S.Word & M.S.Excel for data entry. Basic ideas about Internet – Website, E-mail

Books for Study :

Biostatistics

1. Ramakrishnan.P (1996) Biostatistics, Saras Publications., Nagercoil
2. Saha.T.K.(1992) Biostatistics in theory and Practice, Emkay Publications., New Delhi – 15.
3. Gupta.S.P (1984) Statistical Methods, S.Chand & Co. New Delhi.

Bioinformatics and Computer Application

1. Lodish.H.Etal 2000 Molecular cell Biology W.H.Freeman & West Company New York.
2. Leon.F.and Lean.M (2004) Fundamentals of Computer Science and communication Engineering Lean Tech World.
3. Parameswaran.R (1997) Computer application in Business, S.Chand & Co., New Delhi.
4. Rajaraman.V (1988) Fundamentals of Computer Practice Prentice Hall of India (P) Ltd. New Delhi.
5. Mittal.C (2003) Fundamentals of Information Technology Pragathi Prakasam, Meerut.

Semester – IV Group A. core paper – VI

CORE PRACTICAL – II, BASED ON C4, C5 AND C6

(For the students admitted from the Academic year 2007-2008 and onwards)

ENVIRONMENTAL BIOLOGY

- Estimation of dissolved oxygen of river, pond, sewage and industrial effluent
- Estimation of salinity & PH and its relation to temperature
- Estimation of free Carbon-di-oxide, Carbonates and Bicarbonates of water samples
- Study of Intertidal, rocky, sandy and maddy shore fauna.
- Study of pond Ecosystem

DEVELOPMENTAL BIOLOGY

- Slides showing gametogenesis.

- Difference types of Eggs – Slides and Specimen
- Embryology of Frog - slides
- Chick Embryo whole mount 18, 24, 33, 48, & 72 hours.
- Placenta of Mammals – Pig, sheep, Man & Rabbit

BIOSTATISTICS

Frequency distribution of given samples to find out arithmetic mean, median mode range and standard deviation for a biological date (Variation between any two parameters (Height & Weight)

BIOINFORMATICS AND COMPUTER APPLICATION

Computer components, usage of computer internet and E-mail Download and study at least two samples of Genome sequences.

SPOLTERS

Parts of Computer, Copies of Genome, Sequences DNA and Proteins.

Semester – V core paper – VII

MOLECULAR BIOLOGY GENETICS AND EVOLUTION

(For the students admitted from the Academic year 2007-2008 and onwards)

- Objective :** Exploring the molecular architecture of Bimolecular and their Complex interactions.
- Explaining the basic principles of heredity and the mechanism of inheritance.
- Explaining the practical application of Genetics.
- Describing the various genetic disorders in man and animals. To know the diversity of animal life in earth and mechanism of their evolution.
- Unit – I** Molecular structure of DNA & RNA-Types of RNA – DNA replication, role of RNA in protein synthesis.
- Unit – II** Fine structure of Gene – cistron, Recon, Muton – DNA as genetic material – Genetic code. Mutation – Molecular basis – Gene Mutation – Mutagen Physical and chemical.
- Unit – III** Linkage and crossing over in Drosophila, Cytological basis of crossing over stern's experiment, sex linked Inheritance in Drosophila, Chromosomal aberration.
- Unit – IV** Gene Protein relationship with reference to sickle cell anemia.
- Genetic disorders in man – Klinefelters, Turner's syndrome, Phenyl ketonuria, Albinism – Eugenics.

Unit – V Fossil and Fossilization, Dating of Fossils, Geological timescale, Neo Darwinism.

Text books for study :

1. Verma.P.S and Agarwal.V.K (2004) Genetics, S.Chand & Co., New Delhi
2. Dalela.R.C and Verma.S.R (1970) A Textbook of Genetics, Jaiprakash Nath and Company., Meerut
3. Arumugam.N (2002) Organic Evaluation, Saras Publication., Nagercoil.

Books for reference :

1. De. Robertis E.D.P & De. Robertis E.M.F (1998) Cell and Molecular Biology.
2. Sinnot.E.W., L.C.Dunna and T.Dobzhansky – Principles of Genetics (1983) 4th Edn Tata Mc.Graw Hill Pub Co. Ltd.,
3. Winchester A.M, Genetics 3rd Edn, Oxford IBH Publications.
4. Evolution - Savage
5. Dadson – Evolution a process and product.

Semester – V core paper – VIII

CELL BIOLOGY, BIOCHEMISTRY AND TOOLS

(For the students admitted from the Academic year 2007-2008 and onwards)

Objective : Illustrating, Elucidating the basic structure and functions of cell

Defining and explaining the basic principles of biochemistry and the instruments useful for biological studies.

Unit – I Structure and functions of Plasma membrane, Lysosomes, Golgibodies, ribosomes, mitochondria.

Unit – II Structure and function of Endoplasmic reticulum, Nucleus, Chromosome type – Cell Division – Mitosis and Meiosis.

Unit – III Classification, Structure and functions of Carbohydrates, Protein and lipids.

Unit – IV Enzymes – Classification, properties, chemical Nature, Mechanism of enzyme action – factors affecting enzyme action

Unit – V Microscopy – Principle and working mechanism uses of light and electron Microscopy (TEM & SEM) Chromatography, PHmeter, centrifugation, Calorimeter Spectrophotometer.

Text books for study :

1. Vema.P.S and Agarwal.V.K (1991) Cytology, S.Chand & Co., New Delhi
2. N.Gurumani, Research methodology for Biological Science (2006) MJP Publishers Chennai.
3. L.Veerakumari, Biochemistry (2004) MJP Publishers., Chennai.
4. M.A.Subramanian, Biophysics (2005) MJP Publishers., Chennai.

Books for reference :

1. J.Jayaraman, Lab Manuals in Biochemistry New Age International (P) Ltd. Mumbai.
2. W.H.Freeman & Co. Lodish & Etal (1999) Molecular cell Biology, New York
3. De.Robertis E.D.P & De Robertis E.M.F (1988) Cell and Molecular Biology.
4. Hans S.S (1986) Cell Biology – Allen and Unwin.

Semester – V core paper – IX

BIOTECHNOLOGY PAPER - I

(For the students admitted from the Academic year 2007-2008 and onwards)

- Objective :**
1. Enable understanding of biodiversity as resources that could field products useful to man.
 2. Enables understanding of principle behind techniques involved in biotechnology.
 3. Imparts awareness on intellectual property rights and safety issues involved in handling of transgenic organisms.

Unit – I Definitions and landmarks in the history of Biotechnology major areas of Biotechnology, Organisms important in Biotechnology – Bacteria, Virus.

Unit – II Basis of Genetic Engineering – Restriction Enzymes-Vectors-Plasmids, Phage vector insertion vector, Replacement vectors, Cosmids and Plasmids, High expression Vector.

Unit – III Techniques of Genetic Engineering – Gene Cloning in Prokaryotes and Eukaryotes. Application of the cloned genes with diagnosis and prevention of diseases. Monoclonal Antibodies – Production and application.

Unit – IV Principles and techniques of animal cell culture proplast fusion in prokaryotes and Eukaryotes organisms, Importance of cell line culture.

Unit – V Antisense RNA Technology – Oncogene animal culture, Transgenic Technology – Transgenic Fish, Sheep and pig.

Text books for study :

1. V.Kumaresan – Biotechnology, Saras Publication., Nagercoil.
2. P.K.Gupta – Elements of Biotechnology
3. Lohar.P.S – Biotechnology (2005) – MJP Publishers, Chennai – 5.

Books for reference :

1. A Text Book of Biotechnology – R.C.Dubey S.Chand & Co. New Delhi.
2. Brown.C.H., Campbell I and Priost.F.G (1987) Introduction of Biotechnology – Black well Scientific Publications Oxford.
3. Higgins I.J., Best G.J., and Jones.J (1985) Biotechnology Principles and application – Black well scientific Publications, Oxford.
4. Prave.P.Faust V.Sitting W and Jones – J (1985) Biotechnology Principles and application – Black well scientific Publications Oxford.

Semester – VI, Core Paper – X

PHYSIOLOGY AND ENDOCRINOLOGY

(For the students admitted from the Academic year 2007-2008 and onwards)

- Objective :** Explaining various aspects of physiological activities of animals with special reference to humans.
- Unit – I** Nutrition : Digestion and absorption of carbohydrates proteins and lipids. Respiration – Types – Properties and functions of Respiratory pigments - exchange and transport of Gases (CO₂ & O₂) Bohr's effect.
- Unit – II** Circulation : Composition and function of blood – Types of Hearts – Neurogenic – Myogenic - ECG. Blood pressure Mechanism of Blood clotting Excretion – Classification of animals based on the nature of excretory products, ornithine cycle Osmo regulation in fresh water and marine animals.
- Unit – III** Nerve Physiology : Types of Neuron – Conduction of Nerve impulse. Synapse and synaptic transmission of impulses.
- Unit – IV** Muscle Physiology : Types of Muscle – Ultra structure and properties – Muscle proteins – Theories of Muscle contraction.
- Unit – V** Endocrinology : Structure, secretions and functions of Pituitary, Thyroid, adrenal, islets of langerhans Gonads – Gastro – intestinal hormones – Pheromones.

Text books for study :

1. Parameswaran.R.S.Viswanathan – Animal Physiology Printers & Publishers Pvt. Ltd.
2. Verma.P.S and Agarwal.V.K Animal Physiology S.Chand & Co NewDelhi.

Books for reference :

1. Hoar.W.S.General and comparative physiology Prentice – Hall of India Pvt. Ltd. New Delhi.
2. Prosser.C.L and Brown Fo Comparative Animal Physiology 2nd Edn. W.B.Saunders Cophnadelpia Toppaa & Co. Tokyo Japan.
3. Guyton. Medical Physiology
4. Best.C.H & Jaylor.N.B Physiology Basis of Medical Practice The Wilkins company Baltimore.
5. Bentley.P.J Comparative Vertebrate endocrinology S.Chand & Co. New Delhi.

Semester – VI, Group A, Core Paper – XI

BIOTECHNOLOGY – Paper II

(For the students admitted from the Academic year 2007-2008 and onwards)

- Unit – I** Applications of genetic Engineering in Industry, Alcoholic Fermentation, Medicine (Insulin and Vaccine production) Agriculture (N₂ fixation agro bacterium)
- Unit – II** Fermenter design and types Biogas production Bio-fertilizers and Bio-Insecticide – waste and sewage managements.
- Unit – III** Production of single cell protein (SCP) and Myco proteins Production of bacterial, fungal algal and yeast biomass – Mushroom Culture.
- Unit – IV** Sources and Production of Commercially important enzymes – Cellulose, amylase, diastase, pectinase proteinases – Immobilization of enzymes and its application.
- Unit – V** Cryobiology – Methods cryo preservation – Human genome project – current Indian Scenario in Bio technology – centers, activities, achievements and bio-industries in India.

Text books for study :

1. Elements of Bio-technology – P.K.Gupta
2. A Text Book of Biotechnology – R.C.Dubey S.Chand & Co.
3. Generic Engineering – T.Nicholl
4. Alexander.N. Microbial Biotechnology Glazer and Hiroshi Nikado.

5. Methods of Gene Manipulation – Old & Prime Rose.
6. Molecular Biotechnology - Glick

Semester – VI, Core Practical – III Based on C7, C8, C9, C10 & C11

(For the students admitted from the Academic year 2007-2008 and onwards)

- Physiology :**
1. Ciliary activity in fresh water mussel.
 2. Qualitative analysis of excretory products
 3. Total Count of R.B.C
 4. Total Count of W.B.C
 5. Differential count of W.B.C
 6. Preparation of Harmin crystals
- Genetics :**
1. Blood Grouping in Man
 2. Study of Phenotypic characters of Drosophila
- Cell Biology :**
1. Onion root tip squash preparation – Study of Mitosis
- Biochemistry :**
1. Detection of carbohydrates, proteins, lipids
- Biotechnology:**
1. Blotting techniques – observation of photograph
 2. Isolation and estimation of DNA & RNA (Demonstration Only)
 3. Techniques of sterilization using autoclave/pressure cooker
 4. Preparation of nutrient agar broth
 5. Gel – Electrophoresis – Demonstration Only
- Spotters :**
- | | | |
|--------------------|----------------------|------------|
| (1). Spirulina | (2). Spic Bt Biop | |
| (3). Mushroom seed | (4). Penicillin | (5). Yeast |
| (6). Autoclave | (7). Pressure cooker | (8). Media |
| (9). Azolla | (10). Air-filter | |

Visit to Industry / Field work / Laboratory – A report to be submitted along with record.

SEMESTER - V GROUP C APPLICATION ORIENTED SUBJECT**HUMAN GENETICS AND COUNSELING PAPER -1**

(For the students admitted during the Academic year 2007-2008 & onwards)

- UNIT I** : Human chromosome, Chromosome number, Idiogram, Banding methods (Q, C, G and R banding)
- UNIT II** : Sex determination, Chromosomal method, Endocrinal basis of embryonic, Sex determination, Sex reversal, Sex mosaics, Twins and their significances.
- UNIT III** : Sex linked inheritance, X-linked and Y-linked inheritance, Inbreeding and out breeding, Heterosis.
- UNIT IV** : Human chromosomal disorders (Syndromes) Disorders of chromosome structure and disorders of chromosome number.

UNIT V : Non-Mendelian disorders, HLA disease, In-born errors of metabolism.

SEMESTER VI GROUP C APPLICATION ORIENTED SUBJECT

HUMAN GENETICS AND COUNSELING PAPER –II

(For the students admitted during the Academic year 2007-2008 & onwards)

- UNIT I** : Blood groups (major types) Blood transfusion, Erythroblastosis foetalis. Physiology and genetic of blood groups.
- UNIT II** : Amniocentesis, Dermatoglyphics: Terminology, methods of observation and printing, dermatoglyphic features of syndrome.
- UNIT III** : Population genetics, Hardy-Weinberg principle and its application in human population.
- UNIT IV** : Genetic engineering and its applications in human being, Cancer, AIDS.
- UNIT V** : Genetic counseling, definition, aims, procedure in genetic counseling and its limitation. Pedigree chart and its uses.

REFERENCES

Max Levitan Text Book of Human Genetics - Oxford University Press.

Stern C Principles of Human Genetics W.H. Freeman et al.

Srivastava Genetics

Strickberger Genetics

SEMESTER VI GROUP C APPLICATION ORIENTED SUBJECT

PESTS AND THEIR CONTROL - PAPER I

(For the students admitted during the Academic year 2007-2008 & onwards)

- UNIT I** Introduction, Definition of the term Pest types of pests Importance of their control. General characters of following insect orders of agricultural importance examples some pests, Isopters, Orthopters.
- UNIT II** General characters of insect pest of agricultural importance of Heteroptera, Lepidoptera, Coleoptera, Diptera
Or
Hemiptera
- UNIT III** General Biology and Binomica of important crop pests and their control of cereals, fibre-crops vegetables, fruit, fodder and grasses, forest trees such as

grasshoppers and locust, stem borers, bull worms, bugs, hoppers, cutworms, tubermoth, flies.

UNIT IV Binomics and control of household pests such as louse, mosquito, House fly, Cockroach, Bed Bug.

UNIT V Binomics and control of stored grain pests of Rice, Wheat, Pulses.

Paper II

UNIT I Principles and methods of pest control using Techniques such as Mechanical, Biological, Ecological,

UNIT II Principles and methods of -Pest Control using Techniques of Chemicals, Cultural, Sterile main and genetic technique quarantine, concepts of host-nest interaction integrated pest control.

UNIT III Pesticides and their hazards, Insecticides and their types such as stomach poisons, contact poisons, fumigants systemic poisons.

UNIT IV Pests other than insects and their control, Field rats, bandicoots, Jack Lens, Pigs, Crabs, Snails, by Acede.

UNIT V Method of using pesticides. such as Baits, Sprayers, Dusters Fumigation, outline of uses of chemosterilants, sex - attractants pheromones in insect control.

Books Recommended :

1. Nair K.K.Anandhakrishnan TN & David BV General and applied Entomology. Tata Mc.Graw Hill Publ. Delhi.
2. Metcalf CL anon flint WP 1939;Useful and destructive Mc.Graw hill.
3. Imms AD Text book of Entomology Vol. I & II Ed. By Richard and Owen. ELBS

SEMESTER V GROUP C APPLICATION ORIENTED SUBJECT

PATHOLOGY & CLINICAL LABORATORY TECHNOLOGY – PAPER I (For the students admitted during the Academic year 2007-2008 & onwards)

UNIT I Essential pre-requisites of a Clinical Laboratory :

1. Introduction - Scope of the subject CL T.
2. Collection of specimens, maintenance, and records and preparation of reports.
3. Cleaning and maintenance and care of glasswares.
4. Sterilization - physical and chemical methods.
5. Disposal of specimens and infected materials.
6. Safety precautions in the laboratory. .

7. Knowledge of first aid treatment of superficial wounds, burns and scalds, chemical poisoning, contamination of infected microbiological specimens and electric shock.

UNIT II Laboratory Instruments :

1. Parts of a light microscope and their working.
2. Care and maintenance 'of microscopes, centrifuge and weighing balance.
3. Haemocytometer.
4. Albuminometer.
5. Urinometer.
6. Sahli's haemoglobinometer.

UNIT III Clinical Haematology :

1. Collection of blood (Venous and capillary) Plasma and serum for analysis.
2. Total erythrocyte count.
3. Total leucocyte count and differential count.
4. Haemoglobin estimation by Sahli method.
5. Erythrocyte sedimentation rate (ESR) (Wintrobe and Westgren method).
6. Bleeding and clotting time.
7. Estimation of packed cell volume (PCV).
8. Thin and thick blood film preparation, staining and identification of malarial parasites.
9. Blood film preparation, staining and identification of *Wuchereria bancrofti* and *Bruola malayi*.

UNIT IV Blood Grouping :

1. Test of the donor
2. Compatibility test (Coom's Test)
3. A.B.O Grouping – Tile method, Standard tube technique
4. Causes of false positive and False Negative results
5. Sub Groups of A and differentiation of groups A1 and A2 using Lectines
6. Rhesus grouping techniques

UNIT V Clinical Chemistry

1. Glucose homeostasis – Interpretation of blood and urine glucose levels
2. Oral glucose tolerance test (OGTT) and GTT curves
3. Diabetes mellitus
4. Fasting blood glucose levels and estimation of blood glucose.
5. Plasma lipids and lipoprotein levels
6. Diagnosis of cholesterol and triglycerides levels in Plasma
7. Blood urea Estimation.

**SEMESTER VI GROUP C APPLICATION ORIENTED SUBJECT
PATHOLOGY & CLINICAL LABORATORY TECHNOLOGY – PAPER II
(For the students admitted during the Academic year 2007-2008 & onwards)**

UNIT I Gastric and Liver Function Tests :

1. Composition of normal gastric juice. Stimulation of gastric juice secretion.
2. Augmented histamine test.
3. Estimation of titratable acidity and inference.

4. Fouchet test and Lugol's iodine test for urine bilirubin.
5. Qualitative test for urine urobilinogen.
6. Schlesingers test for urine urobilin.
7. Urine test for bile salts.

UNIT II Urine Analysis :

1. Urine - composition, volume, appearance, odour and collection and preservation of urine for analysis.
2. Determination of urine specific gravity using urinometer.
3. Microscopic examination for organized and unorganized deposits and blood.
4. Measurement of glucose in urine.
5. Detection of protein in urine (Boiling test, Sulfosalicylic acid test, Bence Jones protein test).

UNIT III Faecal Examination :

1. Microscopic examination of faeces for impaired digestion of food stuffs due to severe pancreatic disorder.
2. Testing faeces for occult blood.
3. Sodium chloride and formaldehyde methods for concentration of parasites.
4. Examination of faeces for adult helminth worms (*Ascaris lumbricoides*, *Enterobius vermicularis*, *Taenia solium*, *Taenia saginata*, *Ankylostoma duodenalis*, *Trichuris trichura*)
5. Examination of faeces for ova and cysts of *Entamoeba coli*, *E.histolytica*, *Giardia lamblia*, *Enterobius vermicularis*, *Ascaris*, *Ankylostoma* & *Taenia*

UNIT IV Microbiology:

1. Microscopic examination of bacteria outline biology of bacteria, smearing, hanging drip preparation and wet preparation.
2. Staining comyobacterium diphtheriae.
3. Examination of sputum: volume, consistency, appearance and colour.
4. Examination of throat swab, collection of preparation of smears and Gram's positive and Gram's negative staining.
5. Bacteriological examination of urine.

UNIT V Microbiology:

1. Collection of microbiological specimens and precautionary measures for investigation.
2. External factors and aspects of bacterial growth.
3. Bacterial toxins and their effects.
4. Indigeneous body flora, its significance in health and diseases of man.
5. Routine mycological methods.

Recommended references and Textbooks :

1. Medical Laboratory Technology - Kanai L. Mukherjee. Vol I, II & III
2. A Handbook of Medical laboratory Technology - V.H. Talib & S.R. Khurana.
3. Cameroo D - Parasites and Parasitison.
4. Hyman LH (1951). The invertebrates, Aschehninthes; Vol III Mc Graw Hill Book Co., N.Y.
5. Faust EC (1949): Human Hehninthology, Lea and Feoiger Philadelphia.
6. A Handbook of Medical Entomology and Elementary Parasitology - G.K.Rathnaswamy. .

7. Practical Clinical Biochemistry - Harold Varley, William Heinemann Medical Books, London. .

8. Clinical Pathology and bacteriology - Dr. K.N. Sachdev. Jaypee Brothers.

SEMESTER VI GROUP C APPLICATION ORIENTED SUBJECT

PATHOLOGY & CLINICAL LABORATORY TECHNOLOGY – PRACTICALS

(For the students admitted during the Academic year 2007-2008 & onwards)

1. RBC Total count
2. Leucocyte count - Total
3. Leucocyte count - differential
4. Haemoglobin estimation
5. Bleeding time
6. Clotting time
7. Estimation of ESR
8. Urine specific gravity
9. Urine albumin
10. Glucose in urine
11. Bile salts in urine
12. Estimation of urinobilinogen
13. Microscopic examination of pus-cells and casts in urine
14. Blood in urine
15. Malarial and filarial parasites - examination of slides.
16. Hanging drop preparation
17. Gram's staining

Semester – III, Diploma paper - I

MICROBIOLOGY AND IMMUNOLOGY PAPER - I

(For the students admitted from the Academic year 2007-2008 and onwards)

- Objective :** To understand the basic principles and applications of Microbiology and immunology.
- Unit – I** History and scope of Micro biology – Contributions of Louis Pasteur, Robert Koch, Lister, Edward Jenner, Alexand Flemming – General characteristics of Bacteria, Brief Classification of Microbes.
- Unit – II** Bacteria growth and Nutritional requirements culture of Micro organisms – Types of culture Media cultural characteristics of Bacteria – Methods – staining, maintenance of culture.
- Unit – III** Reproduction in Bacteria – Conjugation – Transformation - Transduction – control of Bacteria – Sterilization by Heat radiation and Air-filter, Disinfectants and Antibiotics (Three each)
- Unit – IV** Study of common bacterial diseases in man, Causative organism, mode of

transmission, Pathogenicity Symptoms and their preventive measures – Cholera, Typhoid, Diphtheria, Tuberculosis, Leprosy, Gonorrhoea, Syphilis.

Unit – V Cells of Immune system – Primary and Secondary lymphoid organs – a brief survey GALT & BALT

Text books for study :

1. Mani.A.Selvaraj.A.M, Narayanan.L.M & Arumugam.N (1999) 'Microbiology' – General and Applied, Saras Publications., Nagercoil.
2. Dulsy Fatima & Arumugam.N (2000) 'Immunology Saras Publications., Nagercoil.

Books for reference :

1. Anantha Narayanan & Jayaram Panicker – Medical Microbiology.
2. A Text Book of Microbiology – Dubey – S.Chand & Co.
3. Pelezas Jr.M.J., Chan, E.C.S and Kreig.N.R (1993) Microbiology – Concepts & Applications, Mc.Graw Hill New York ISBN.
4. Kuby.J (1999) Immunology, W.G.Freeman & Co., New York
5. Roitt.I.M (1988) Essentials of Immunology EIBS Edn. London.

Semester – IV, Diploma Paper - II

MICROBIOLOGY AND IMMUNOLOGY PAPER -II

(For the students admitted from the Academic year 2007-2008 and onwards)

- Unit – I** General characteristics of viruses – Structure of phage (TMV) Zoophage (HIV) and Bacteriophage (T4) Lytic and Lysogenic cycle of T4 phage.
- Unit – II** Culture of virus (Animal) – Primary culture – Diploid cell culture – Continuous cell lines – Viral genetics.
- Unit – III** Viral diseases : Causative organisms, Mode of transmission pathogenicity, symptoms and their preventive measures cold, Poxviruses (Chicken pox, Measles) Hepatitis-B, Polio – Rabies – Viral cancer.
- Unit – IV** Protozoan microbiology: A brief survey of protozoan diseases – Plasmodium and Malaria in detail salient features of Antinomyces – superficial mycosis and dermatophytes.
- Unit – V** Lymphocytes – Subpopulation of T & B cells – Antigens – Antibodies – Immunoglobins structure and types (A basic study) survey of Innate and acquired Immunity.

Semester – V, Diploma paper - III

MICROBIOLOGY AND IMMUNOLOGY PAPER - III

(For the students admitted from the Academic year 2007-2008 and onwards)

- Unit – I** Dairy Microbiology : Pasteurization of Milk other products curd, butter, cheese – Fermented food, food spoilage – Food Poisoning – Physico – Chemical methods in food preservation.
- Unit – II** Soil Microbiology : Common soil bacteria's, Symbiotic - Asymbiotic organisms – Physiology of N₂ fixation,
Water Microbiology : Coliform bacteria & MPN Estimation of total plate count, Index, Faecal streptococci.
- Unit – III** Economic importance of Algae & Fungi Microbial quality of Milk – MBR test – water purification – Flocculation, Filtration and chlorination fermentation process of alcohol and penicillin.
- Unit – IV** Immune response – Humoral – cell mediated immunity – complements – components – Modes of activation – immuno deficiency disease - AIDS
- Unit – V** MHC and HLA structure and functions – Transplantation immunology – Types of grafts – Graft rejection prevention of graft rejection – Immune Techniques – VDRL test – Double Immuno diffusion – ELISA - Radio Immuno Assay.

Semester – VI, Diploma Practical

PRACTICALS BASED ON D1, D2, D3 PAPERS

(For the students admitted from the Academic year 2007-2008 and onwards)

1. Technique of sterilization using Autoclave / pressure cooker
2. Preparation of Nutrient Agar broth
3. Distribution of Microbes in soil, air & water (Individual practical)
4. Determination of microbiological quality of milk raw and pasteurized milk samples – using MBR test (Methylene blue reduction)
5. Hanging drop technique
6. Gram's staining
7. Gel Electrophoresis – Demonstration only
A visit to Industry / laboratory – A report to be submitted.

SPOTTERS

1. Spirulina (2) Spic Bt bio-pesticide (3) Penicillin
2. Antibody – Multi disc (5) Yeast (6) Thymus gland
3. Autoclave (8) Pressure cooker (9) VDRL test kit (10) Air filter (11) Media

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046
B.Sc., Advanced Zoology and Biotechnology
Model Question Paper
PATHOLOGY & CLINICAL LAB TECHNIQUES I

Time : 3 Hrs
75

Max. Marks :

Section – A (10 x 1 = 10)

1. is the powerful and choice anticoagulant for routine haematological work (EDTA)
2. The urinometer contains in its bulb..... (mercury)
3. PCV estimates the volume of..... (erythrocytes)
4. Icteric index indicates the value of (bilirubin)
5. Increased levels of triglycerides in seven are indicating the risk factor.....(heart attack)
6. What is total magnification when one uses an objective lens of 10x and an eye piece of 15x?
7. Why do we use cedar wood oil for oil immersion lens?
8. What is the normal value of Haemoglobin for adult males and females?
9. If the unknown cells show agglutination only with Anti A serum, which blood group does it belong to?
10. What is Diabetes mellitus?

Section – B (5 x 5 = 25)

11. What are the different types of records maintained in a Clinical Lab?
(or)
Describe Chemical Sterilization
12. Mention the steps to be followed for the maintenance and care of a weighing balance
(or)
Draw the labeled diagram of a compound microscope and describe the uses of its various parts
13. How will you estimate PCV? Add a note on its significance
(or)
Describe the methods for the collection of blood
14. What are the tests required for screening a blood donor?
(or)
How will you find out the sub groups of A?
15. What is OGTT? How is it performed? What is its significance?
(or)
How will you estimate the blood glucose?

Section – C (5 x 8 = 40)

16. Explain the safety precautions to be followed in a Clinical laboratory
(or)
How will you give First aid for burns, poisoning and electric shock?
17. How will you count the number of RBC using Haemocytometer?
(or)
Explain Sahl's Haemoglobinometer and its uses
18. What is ESR? Explain the methods used to find out ESR. What is its significance?
(or)
How will you prepare the blood smear for the identification of malarial parasite?
19. Explain the methods used to find out ABO grouping.

(or)

Explain Coomb's compatibility test

20. How will you estimate the amount of triglycerides in blood?

(or)

What is BUN? How will you estimate BUN?

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046
B.Sc., Advanced Zoology and Biotechnology
Model Question Paper
PATHOLOGY & CLINICAL LAB TECHNIQUES II

Time : 3 Hrs

Max. Marks :

75

Section – A (10 x 1 = 10)

1. The nature of gastric juice is.....(acidic)
2. The specific gravity of normal human urine is (1.016 – 1.025)
3. Entamoeba histolytica causes.....damage to intestine (mucosal)
4. Vibrio cholerae grow better in medium (alkaline)
5. When sputum is rust coloured, it indicates.....infection (pneumococcal)
6. What are the different types of bile pigments?
7. What are the tests performed to find out protein in urine?
8. What is the disease caused by Giardia?
9. What is the type of the toxin produced by corynebacterium diphtheriae?
10. What is the study of Fungi called?

Section – B (5 x 5 = 25)

11. What are the factors stimulating the secretion of gastric juice?

(or)

How will you estimate titrable acidity?

12. Describe the composition and characters of normal urine

(or)

Describe Bence Jones protein test and its significance

13. How will you test faeces for occult blood?

(or)

How will you find out pancreatic disorder through the microscopic analysis of faeces

14. Give an account of bacterial toxins and their effects

(or)

Explain the routine mycological methods

15. What are the different staining methods to find out Corynebacterium diphtheriae

(or)

How will you prepare a throat swab?

Section – C (5 x 8 = 40)

16. How will you perform Augmented Histamine Test? What is its significance?

(or)

Explain the methods of performing Fauchet's test and Schlesinger's test

17. What are the different types of formed elements found in urine?

(or)

How will you estimate the specific gravity of urine using urinometer?

18. Describe the methods for concentrating the parasites in faeces

(or)

How will you examine the faeces for *Enterobium vermicularis*, *Taenia solium* and *Ankylostoma duodenale*

19. Explain the Gram staining method and its uses

(or)

Explain the Hanging drop preparation and its significance

20. How will you collect various specimens for microbiological analyses?

(or)

What are the factors which affect the bacterial growth?

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046

B.Sc., Advanced Zoology and Biotechnology

Model Question Paper

MOLECULAR BIOLOGY, GENETICS & EVOLUTION

Time : 3 Hrs

Max. Marks :

100

Section – A (10 x 1 = 10)

1. The nucleic acid that carries the information from the nucleus to the cytoplasm is.....(m RNA)
2. The portion of DNA specifying a single polypeptide chain is termed as..... (cistron)
3. The genes present in Y chromosome alone are called.....(Holandric genes)
4. Sickle cell anaemic people have.....alleleic combination (Hb^sHb^s)
5. Carboniferous period is included in.....era (Paleozoic)
6. In which organelle does the protein synthesis take place?
7. What is frameshift mutation?
8. Name the intrachromosomal aberrations
9. What is the chromosomal combination for Klinefelter's syndrome?
10. Who are called Neo-Darwinians?

Section – B (5 x 6 = 30)

11. Explain the Watson and Crick model of DNA

(or)

Explain the models for t-RNA

12. Give an account of Genetic code

(or)

Explain Hershey-Chase method to prove DNA as the genetic material

13. How are the genes linked to X chromosome alone inherited?

(or)

If two genes show complete linkage, what will be test cross ratio?

14. How will you show that sickle cell anemia is due to a defect in gene?

(or)

How will you show that genes are governing the metabolism in our body?

15. Mention the methods for Dating of fossils

(or)

Mention the factors governing fossilization

Section – C (5 x 12 = 60)

16. Explain how protein synthesis is related to genes

(or)

Explain how chromosomes are making copies

17. Give an account of physical mutagens and their effects

(or)

- Give an account of chemical mutagen and their effects
18. Define crossing over. Explain the mechanism of crossing over and the significance
(or)
Give an account of abnormalities seen in chromosomal structure
19. What is Eugenics? How is it used in improving Human Race?
(or)
Define syndromes. Explain Klienfilter's syndrome and Turner's syndrome
20. How does Neo-Darwinism help in supporting Darwinism
(or)
Give an outline of 'Geological Time Scale'

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046
B.Sc., Advanced Zoology and Biotechnology
Model Question Paper
BIOTECHNOLOGY PAPER - I

Time : 3 Hrs
100

Max. Marks :

Section – A (10 x 1 = 10)

1. The superbug that cleanses the environment is.....(pseudomonas)
2. The copy number of a bacteria can be further increased by.....
(chloramphenicol)
3. The monoclonal antibody used for organ transplantation is.....(OKT-3)
4. In cell culture the minimum essential medium was developed
by.....(Eagle)
5. Transgenic sheep is produced mainly for better.....(wool)
6. Define Biotechnology
7. What is chimeric DNA?
8. What is Restriction enzyme?
9. Define Molecular pharming
10. Define Monoclonal Antibody

Section – B (5 x 6 = 30)

11. Write a short note on the major areas of Biotechnology
(or)
Mention the used of bacteria in biotechnology
12. Briefly describe the role of restriction enzyme in genetic engineering
(or)
What are the basic requirements for tissue culture laboratory?
13. Describe the plasmid preparation for vector construction
(or)
What is antisense RNA technology?
14. Write short note on phage vector
(or)
Write a short notes on cosmids
15. Write a short account on animal culture media
(or)
Explain Agrobacterium plasmids in eukaryotic gene cloning

Section – C (5 x 12 = 60)

16. Give a detailed account on the basis of genetic engineering. Add a note on restriction endonucleases involved

(or)

Write an essay on role of micro organism in Biotechnology

17. Describe the application of cloned genes in diagnosis and treatment of diseases

(or)

Write an essay on Animal tissue culture and their applications

18. What is transgenic technology? Give the significance of animal pharming

(or)

Describe how antisense RNA technology is used in cancer treatment

19. Give a detailed account on protoplast technology and its significance in plants

(or)

Write an essay on the methods of gene cloning in prokaryotes

20. Enumerate the steps involved in monoclonal antibody production and add a note on its applications

(or)

Transgenic sheep and Transgenic pig - Discuss

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046

B.Sc., Advanced Zoology and Biotechnology

Model Question Paper

BIOTECHNOLOGY PAPER - I

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Max. Marks :

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Transgenic sheep and Transgenic pig - Discuss

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046
B.Sc., Advanced Zoology and Biotechnology
Model Question Paper
BIOPHYSICS, BIOSTATISTICS AND COMPUTER APPLICATION

Time : 3 Hours
Marks

Maximum : 100

Section – A (10 x 1 = 10 Marks)

1. The term pH was introduced by.....
2. The pH value of saliva is about
3. The Tyndall phenomenon was first reported by
4. The movement of water is called
5. occurs the greatest number of frequency in a series
6. Define Arithmetic Average
7. Define Standard Deviation
8. How will you denote Standard Deviation?
9. Define a Mini Computer
10. Name the input device of a computer

Section – B (5 x 6 = 30 Marks)

11. Explain Beer-Lambert's Law.
(or)
Define and explain pH.
12. Define and discuss hydrotrophy
(or)
Define and describe filtration.
13. Give the merits and demerits of mean.
(or)
Write down the merits and demerits of median.
14. Differentiate regression and correlation.
(or)

Comment on standard error.

15. Account on computer organization.

(or)

Give a brief note on computer virus.

Section – C (5 x 12 = 60 Marks)

16. Explain the principles and applications of pH meter.

(or)

Enumerate the uses of buffers.

17. Write an account on Donnan-membrane equilibrium

(or)

Give an account on surface tension

18. Explain the various sources of secondary data

(or)

Describe the various methods of graphical representation of data

19. Define and explain standard deviation

(or)

Define and discuss chi-square test.

20. Write an account on generations of computer

(or)

Compare computer hardware and software

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046

B.Sc., Advanced Zoology and Biotechnology

Model Question Paper

BIODIVERSITY OF INVERTEBRATES - II

Time : 3 Hours
Marks

Maximum : 100

Section – A (10 x 1 = 10 Marks)

1. Which is the respiratory pigment present in prawn.....
2. The connecting link between annelide and arthropoda is
3. Limulus is commonly known as
4. Bee venom is used to cure
5. Torsion occurs in the larva of
6. Name of the respiratory organ of fresh water mussel?
7. Which type of circulatory system is found in sepia?
8. Name any two crustacean larva?
9. Name the organ used for respiration in starfish?
10. Name the order to which Antedon belongs to?

Section – B (5 x 6 = 30 Marks)

11. Describe the excretory system of Prawn

(or)

List out the distinguishing characters of class Arachnida with suitable examples

12. Mention the affinities of Peripatus with Annelida

(or)

Insects are beneficial works to man-Explain.

13. Write a short note on Glochidium larva of Fresh water mussel.

(or)

Give an account of process of Torsion.

14. Write short notes on Destructive Molluscs.

(or)

Write notes on the structure and functions of shell in sepia.

15. Explain the types of Pedicellaria with suitable diagrams

(or)

Mention any five general features of class orphiocistiodea with suitable examples

Section – C (5 x 12 = 60 Marks)

16. Give an account of larvae of crustacea.

(or)

Discuss in detail about the appendages of Prawn.

17. Write a detailed essay on External features of Peripatus with a diagram.

(or)

Give an account on the social life of insects.

18. Mention any ten salient features of mollusca with suitable examples.

(or)

Describe the excretory system of fresh water mussel

19. Write an essay of nervous system of sepia with suitable diagrams.

(or)

Give an account of the economic importance of molluscs.

20. Explain the water vascular system of star fish.

(or)

Describe the larval forms of echinodermata.

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046**B.Sc., Advanced Zoology and Biotechnology****Model Question Paper****GENETICS AND EVOLUTION**

Time : 3 Hours
Marks

Maximum : 75

Section – A (10 x 1 = 10 Marks)

1. Closely placed genes on the same chromosomes are inherited together, this phenomenon is known as.....
2. Linkage theory was proposed by.....
3. The biological fitness is improved in certain mutation is known as
4. Deletion or insertion of genes of one or few nucleotide is called
5. In tRNA anticodon, the wobble base is
6. What is the chromosand make up of kline felter's syndrome?
7. Define syndromes.
8. Define fossils.
9. What is a Cistron?
10. What are non-sense codons?

Section – B (5 x 6 = 30 Marks)

11. Discuss the main principles of linkage behind the theory of linkage.

(or)

Explain the linkage in drosophila by checker board method

12. Discuss the mechanism of crossing over.

(or)

Give an account on molecular basis of mutation.

13. Write a note on frame-shift mutation.

(or)

Discuss the genetic code is an universal code.

14. Give an account on sex-limited genes.
(or)

Discuss about sex influenced genes.

15. Write short notes on Turher's syndrome
(or)

Briefly describe about sickle cell anemia.

Section – C (5 x 12 = 60 Marks)

16. Explain atleast three theories about the mechanism of crossing over.
(or)

Give brief explanation on various types of sex linked inheritance.

17. Write an elaborate notes on missense, non-sense and silent mutations.
(or)

Discuss about effect of mutation on genetic suppression

18. Write brief notes on phenylketonuris and albinism.
(or)

Briefly explain different methods for dating fossils.

19. Summarise the fossils and fossilization.
(or)

Outline the geological time scales.

20. Discuss adaptive radiation in mammals.
(or)

Write an elaborate notes on different types is isolating mechanism in speciation.

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046
B.Sc., Advanced Zoology and Biotechnology
Model Question Paper
BIODIVERSITY OF INVERTEBRATES - I

Time : 3 Hours
Marks

Maximum : 100

Section – A (10 x 1 = 10 Marks)

1. Protozoans are animals.
2. Amoebiasis is caused by
3. Spicules develop from cells.
4. The large opening, at the distal end of sponges is called
5. Coelentrates exhibits symmetry
6. What is velum?
7. Define endoparasite with an example
8. What is Scolex?
9. Define Clitellum.
10. What is nephirdium?

Section – B (5 x 6 = 30 Marks)

11. Describe the pattern of locomotion in paramecium.
(or)
Explain the protozoan disease caused by entamoeba.
12. Write a brief note on the economic importance of sponges.
(or)
Describe the salient features of porifera.
13. Describe the salient features of the phylum coelenterata.

(or)

Explain the sense organs of obelia medusa.

14. Describe the characteristic features of the class turbellaria. Mention any two examples.

(or)

What are the parasitic adaptations of Taenia solium.

15. Describe the salient features of the phylum Annelida with any 3 examples.

(or)

Describe the excretory system in Earthworm.

Section – C (5 x 12 = 60 Marks)

16. Mention the salient features of the phylum protozoa. Classify upto classes.

(or)

Explain the method of sexual reproduction in paramecium.

17. Describe the cell types in the body wall of Leucosolenia.

(or)

Explain the sexual reproduction and development in Leucosolenia.

18. Give an account on types and importance of coral reef.

(or)

Explain the alternation of generation in the reproduction of obelia.

19. Give an account on any 3 nematode parasite, the disease caused by them and control measures.

(or)

Write a brief account on the life history of Taeniasolium.

20. Explain filter feeding in polychaetes.

(or)

Explain the male reproductive system in Earthworm.

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046

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Model Question Paper

DEVELOPMENTAL BIOLOGY

Time : 3 Hours
Marks

Maximum : 100

Section – A (10 x 1 = 10 Marks)

1. The transformation of the spermatid into spermatozoon is called
2. One graafian follicle develops into a
3. The egg with little or no yolk is known as
4. In chick the cleavage is
5. The movement of cells on the surface of the gastrula is known as
6. Define Blastopore.
7. What is evagination?
8. What is Lateral mesoderm? Give one example.
9. What is regeneration?
10. What is embryonic hollow sae?

Section – B (5 x 6 = 30 Marks)

11. What is spermatogonium? Explain the acrosomal formation of a sperm.

(or)

Describe the structure of a mammalian Oocyte.

12. Describe the blastulation in frog.

(or)

Explain the radial cleavage with one example.

13. List out the types of morphogenetic movements of cells during gastrulation.

(or)

Explain the gastrulation process in amphioxus with suitable diagrams.

14. Describe the development of lens in frog.

(or)

Explain the developmental process four chambered heart in chick.

15. Write a short note on amnion and chorion of chick egg.

(or)

Give a brief account of blastema formation.

Section – C (5 x 12 = 60 Marks)

16. Describe the different stages of spermatogenesis.

(or)

Describe the detail the process of Oogenesis.

17. Write an essay on the types of eggs based on the amount and distribution of yolk.

(or)

Describe the cleavage patterns of chick egg.

18. Give an account of gastrulation process of frog.

(or)

What is fate-map? Explain the fate-map of frog.

19. Describe the heart development in frog.

(or)

Explain the development process of eye in chick with suitable diagrams.

20. Write an essay on the metamorphosis in frog.

(or)

Give an account of placentation in mammals.

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Model Question Paper

PHYSIOLOGY AND ENDOCRINOLOGY

Time : 3 Hours

Maximum : 100

Marks

Section – A (10 x 1 = 10 Marks)

1. Ciliary feeding is observed in.....
2. The respiratory pigment of muscle is called.....
3. The protein involved in blood clotting is.....
4. Urea is synthesized through.....
5. Node of Ranvier is present in.....
6. What is the velocity of nerve impulse?
7. What is meant by fatigue?
8. What is myoglobin?
9. Name the cells of pancreas that secrete insulin.
10. Name the hormone secreted by anterior pituitary.

Section – B (5 x 6 = 30 Marks)

11. Write a brief account on digestion of carbohydrate.

(or)

Write a brief note on oxygen dissociation curve.

12. Describe the various principles of haemodynamics of circulation.

(or)

Explain ornithine cycle.

13. Explain reflex action.

(or)

Explain neuro muscular junction.

14. Differentiate isotonic and isometric contraction.

(or)

Explain muscle fatigue.

15. Write a critical comment on cretenism.

(or)

Write critical comment on myxoedema.

Section – C (5 x 12 = 60 Marks)

16. Write a brief account on fat soluble vitamins.

(or)

Write an essay with suitable diagrams about transport of oxygen and carbon dioxide.

17. Write an essay on blood clotting mechanism.

(or)

Write an account about the physiology of urine formation.

18. Write an account on mechanism of nerve impulse conduction.

(or)

Write an account on synaptic transmission.

19. Write an essay on mechanism of muscle contraction.

(or)

Write an essay on physico chemical changes taking place during muscle contraction.

20. Describe the hormonal control of pregnancy and child birth.

(or)

Write an essay on hormonal regulation of carbohydrate metabolism.

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Model Question Paper

ECOLOGY

Time : 3 Hours

Maximum : 100

Marks

Section – A (10 x 1 = 10 Marks)

1. In lake the shore shallow water zone is referred as.....
2. Grasshopper in grassland ecosystem is a
3.region of the sea provides maximum productivity
4. Algal bloom in the fish pond affects the.....
5. The potential natality is solely determined by the.....
6. Define mortality.
7. What is meant by lithosere?
8. Define ecotype.
9. Define Commensalism.
10. Define temporary parasites.

Section – B (5 x 6 = 30 Marks)

11. Write a short note on types of ponds and their characteristic features.

(or)

Explain the desert animals and their adaptations.

12. Write notes on freshwater fish management.

(or)

Give a brief account of freshwater resources.

13. Explain the J-shaped growth phase and its significance.

(or)

Discuss about the natality and carrying capacity of a population.

14. Distinguish between sere and climax community.

(or)

Explain ecological Niche and its advantages.

15. Describe mutualism with example.

(or)

Give a brief account of parasitic adaptations.

Section – C (5 x 12 = 60 Marks)

16. Describe in detail about freshwater animals and their adaptations.

(or)

Describe natural resources in detail.

17. Write an essay on ocean farming and its significance.

(or)

Give an account of desalination process and its importance.

18. Explain the structure and organization of animal population.

(or)

Describe in detail about the S-shaped growth curve and its significance.

19. Write an essay on community stratification.

(or)

Describe in detail about the types of successions. Add a note on their significance.

20. Define commensalism. Explain the types of commensalism with example.

(or)

What is antagonism? Describe their types with examples.

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Model Question Paper

AOS – PEST AND THEIR CONTROL - II

Time : 3 Hours

Maximum : 75

Marks

Section – A (10 x 1 = 10 Marks)

1. Killing of granary Weevils by high temperature is.....method
2. Pest surveillance is a method of.....
3. Integrated Pest Management advocates to avoid.....
4. Legal enforcement to prevent entry of exotic pests is.....
5.is a systemic insecticide
6. Mention any two fumigants.
7. Mention any two pests other than insects.
8. Give any two control methods of field rats.
9. What is meant by phenomones?
10. What are sex attractants?

Section – B (5 x 5 = 25 Marks)

11. Write notes on insect predators.

- (or)
Compare pest control and pest management.
12. Write short notes on DDT.
(or)
What is Quarantine?
13. Define Pesticides.
(or)
Write notes on contact poison.
14. Bandicoot is a vector-substantiate.
(or)
Enumerate the problems caused by pigs.
15. Describe < duster.
(or)
What is fumigation?

Section – C (5 x 8 = 40 Marks)

16. Explain the Radiological method of pest control.
(or)
Emphasize the viability of Biological pest control strategy.
17. Explain the concept of sterile male technique.
(or)
Plant resistance and pest control-Discuss.
18. Bring out the hazards of pesticides.
(or)
Explain the working mechanism of systemic poison with an example.
19. Evaluate the pest status of birds.
(or)
Describe the control measures of snails.
20. Write a brief account on chemosterilants.
(or)
Evaluate the efficiency of pheromone in pest control.

BHARATHIAR UNIVERSITY : COIMBATORE – 641 046
B.Sc., Advanced Zoology and Biotechnology
Model Question Paper
AOS – PEST AND THEIR CONTROL - I

Time : 3 Hours
Marks

Maximum : 75

Section – A (10 x 1 = 10 Marks)

1. Galls are produced by.....
2. Pests which occur throughout the year are called.....
3. Oryctes rhinoceros belongs to order.....
4. Larva of lepidoptera are called.....
5. The brown leaf hopper which attacks kuruvai crop is.....
6. Give the geological name of human head louse.
7. Name the vector that causes malaria.
8. Give any two pests of sugarcane.
9. Mention any two pests of mango.
10. Give any two pests of stored grains.

Section – B (5 x 5 = 25 Marks)

11. What are the important characters of Orthoptera?
(or)
What are the salient features of Isoptera?
12. Explain salient features of Diptera with an example.
(or)
Explain the salient features of Heteroptera with an example.
13. Write a short account on any three pests of cereals.
(or)
Write a short account on any three pests of fruits.
14. Describe the measures adopted to control Housefly.
(or)
Describe the measures adopted to control cockroaches.
15. Enumerate any three stored grain pests of rice.
(or)
Enumerate any three stored pests of wheat.

Section – C (5 x 8 = 40 Marks)

16. What is a pest? Classify the pests. Add a note on integrated pest management.
(or)
Give an account on the insects of agricultural importance.
17. Explain general characters and agricultural importance of any two pests of Lepidoptera.
(or)
Explain the general characters and agricultural importance of any two pests of coleoptera.
18. Explain the binomics of any two pests of vegetables.
(or)
Explain the binomics of any two pests of fibre crops.
19. Explain the binomics and control measures of mosquito.
(or)
Explain the binomics and control measures of bed bug.
20. Describe the binomics and control measures of any two stored grain pests of pulses.
(or)
Describe the binomics and control measures of any two stored grain pests of rice.