ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGRE COLLEGE OF ARTS & SCIENCE, VUYYURU-(Autonomous) AccreditedbyNAACwith"A"Grade

2020-21



DEPARTMENT OF ZOOLOGY

MINUTES OF BOARD OF STUDIES

04-07-2020 (ODD SEMESTER)



Minutes of the meeting of Board of studies in Zoology for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 11.00 AM on 04-07-2020 in the Department of Zoology.

Smt.D.A. Kiranmayee Members

Presiding

Presents

1) . D. Anuna Kinanmay e Chair person

2). J. Noveene Lavay a Lette University Nominee (Dr. J.N. Lavanya Latha.) 4/7/2020

(Smt. D.A.Kiranmayee.)

Head, Department of Zoology, A.G&S.G.S Degree College of Vuyyuru-521165.

Krishna University,

Machilipatnam.

3)(Dr.K.Daniel)

Academic Council Nominee Head, Dept.of Zoology, JKC College, Guntur.

Academic Council Nominee Head, Dept.of Zoology, Govt.DegreeCollege, Pitapuram.

5). M. Coleshini, Brigonlean (kum.M.Lakshmi Priyanka.)

Member

A.G&S.G.S Degree College Vuyyuru-521165.

BA . 6) (B.Appala Naidu)

Industrialist

Asst. ProjectManager. RGCA

7). ch Chiranjeevi.)

Student Represent P.hd –Research Scholar, Dept.ofBotany& Microbiology, Acharya Nagarjuna University, Guntur

Minutes of the meeting of Board of studies in Zoology for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 11.00 AM on 04-07-2020 in the Department of Zoology.

Smt.D.A. Kiranmayee. Presiding ...

Members Present:

1) Chair person . A.G&S.G.SDegreeCollege of (Smt. D.A.Kiranmayee.)

Vuyyuru-521165.

2)..... University Nominee Dr. J.N.Lavanya Latha, (Dr.J.N.Lavanya Latha.)Krishna University, Machilipatnam.

3)...... (Dr. K.Daniel.) Nominee

Academic Council JKC College,

Industrialist

RGCA

Head, Department of Zoology,

Head, Department of Zoology,

Guntur, - 10

4)..... (B.Elia.) Nominee

Academic Council Head, Department of Zoology, Gov. Degree College, Pitapuram.

5)..... (kum.M.Lakshmi Priyanka.)

Lecturer in Zoology, Member A.G&S.G.S Degree College Vuyyuru-521165.

6)..... (B. Appala Naidu.)

7)..... (Ch.Chiranjeevi.)

Manikonda. Student Represent P.hd -Research Scholar, Dept.ofBotany& Microbiology,

Asst: Project Manager,

Acharya Nagarjuna University,

Guntur.

Minutes of the meeting of Board of studies in Zoology for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 11.00 AM on 04-07-2020 in the Department of Zoology.

Smt.D.A. Kiranmayee. Presiding

Members Present:

1) Chair person A.G&S.G.SDegreeCollege of Vuyyuru-521165. (Smt. D.A.Kiranmayee.)

Head, Department of Zoology,

2)..... University Nominee Dr. J.N.Lavanya Latha, (Dr.J.N.Lavanya Latha.)Krishna University,

3)..... Academic Council (Dr. K.Daniel.) Nominee JKC College,

Head, Department of Zoology, Guntur,

(Dr. B.Elia.) Nominee

5)..... (kum.M.Lakshmi Priyanka.)

Vuyyuru-521165.

6)..... (B. Appala Naidu.)

7)..... (Ch.Chiranjeevi.)

Guntur.

Academic Council Head, Department of Zoology, Gov. Degree College, Pitapuram.

Machilipatnam.

Lecturer in Zoology, Member A.G&S.G.S Degree College

Asst. Project Manager, Industrialist RGCA Manikonda.

Student Represent P.hd -Research Scholar, Dept.ofBotany& Microbiology, Acharya Nagarjuna University.

Agenda for B.O.S Meeting.

1. To recommend the syllabi (Theory & Practical), Model question paper for I Semester of I B.Sc (B.Z.C) for the academic year 2020 - 2021.

- 2. To recommend the syllabi (Theory & Practical), Model question paper for III Semester of II B.Sc (B.Z.C) for the academic year 2020 2021.
- 3. To recommend the syllabi (Theory & Practical), Model question paper for V Semester of IIIB.Sc (B.Z.C) for the academic year 2020 21
- 4. To recommend the Blue print for the semester end exam for I, III & V semester of I,II,III B.Sc (B.Z.C) for the academic year 2020 21.
- 5. To recommend the syllabus of Competitive Zoology as Unit VI in I and III semesters.
- 6. To recommend the syllabus of Certificate Course, Organic Farming to Science and Non-Science students
- 7. To recommend the teaching and evaluation methods to be followed under Autonomous statues.

8. Any other matter.

D. A. Ciwummayee

Chairman

RESOLUTIONS

1. It is resolved to implement the revised new syllabus (Theory & Practical), model question paper & guide lines to be followed as prescribed by APSCHE in ZoologyI semester of I B.Sc. (B.Z.C) under Choice Based Credit System (CBCS).

2. It is resolved to implement the same syllabi (Theory & Practical), model question paper & guide lines to be followed by the question papers under Choice Based Credit System (CBCS) for Zoology III Semester of II B.Sc. (B.Z.C) approved by the Academic Council of 2020 –21.

3. It is resolved to implement the same syllabi & model papers under Choice Based Credit System (CBCS) Setters of Zoology of V semester of III B.Sc. (B.Z.C) to be approved by the Academic Council of 2020-21.

4.It is resolved to continue the same Blue prints of I, III, &V SemestersofB.Sc Zoology for the Academic year 2020-21.

5. It is resolved to follow the syllabus of Competitive Zoology as Unit- VI in I, III Semesters for the Academic year 2020-2021.Questions from the VI-Unit will be given in IA-1, IA-II but not in semester end exams.

6. It is resolved to conduct Certificate course in Organic Farming to Science and Non- Science Students.

7. It is resolved to continue the following teaching & evaluation methods for the Academic year 2020-21.

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. Using of OHP and LCD projector to display on U boards etc; for better understanding of concepts.

Evaluation of a student is done by the following procedure:

• Internal Assessment Examination:

- Out of maximum 100 marks in each paper for I, II, IIIB.Sc, 30 marks shall be allocated for internal assessment.
- Out of these 30 marks, 20 marks are allocated for announced tests (i.e. IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the assignment for I, II, III B.SC.
- There is no pass minimum for internal assessment for I, II, III B.Sc. Semester – End Examination:
- The maximum mark for I, II, III B.Sc semester- End examination shall be 70 marks and duration of the examination shall be 3 hours. Even through the candidate is absent for two IA exams / obtain zero marks the external marks are considered (if the candidate gets 40/70) and the result shall be declared as "PASS"
- Semester End examination shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of I, III, & V semester for I, II & III B.Sc.
- Discussed and recommended for organizing Seminars, Guest lectures, Work Shops to upgrade the Knowledge of students, for the approval of the Academic Council.

B. A. (civunmayee_

Chairman

A.G & S.G.S.DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU 521165, KRISHNA Dt., A.P. (AUTONOMOUS)

ZOOLOGY

Semester - I

Class: I B.Sc. PAPER-I Credits : 3 Title of the paper: Biology of Non – Chordates. 60 hrs.(4hrs/week) _____ _____

w.e.f. 2020-2021 (Code: Zoo-101C) Max.Marks: 70

UNIT-I

10hrs.

1.1: Whittaker's five kingdom concept and classification of Animal Kingdom.

1.2 General Characters and classification of protozoa up to classes with suitable examples

1.3: Phylum - Protozoa: Type study: Elphidium

UNIT-II16 hrs

Phylum Porifera

2.1 General characters and classification up to classes with suitable examples

2.2 Skelton in Sponges, Canal system in sponges

Phylum – Coelenterata

2.3 General characters and classification up to classes with suitable examples

2.4 type study: Obelia – Morphology, Structure of polyp & Medusa

2.5 Polymorphism in coelenterates

2.6 Corals and coral reefs

UNIT-III10 hrs

Phylum Platyhelminthes

3.1 General characters and classification up to classes with suitable examples

3.2 Life cycle and pathogen city of Fasciola hepatica

3.3 Parasitic Adaptations in helminthes Phylum Nemathelminthes

3.4. Life cycle and pathogen city of Ascarislumbricoides

UNIT-IV 15hrs

Phylum Annelida

4.1 General characters and classification up to classes with suitable examples

4.2 Evolution of Coelom and Coelomoducts

4.3 Vermiculture - Scope, significance, earthworm species, processing, Vermicompost, economic importance of vermicompost

Phylum Arthropoda

4.4 Vision and respiration in Arthropoda

4.5Peripatus - Structure and affinities

UNIT-V

Phylum Mollusca 9 hrs

5.1 General characters and classification up to classes with suitable examples

5.2 Pearl formation in Pelecypoda

5.3 Water vascular system in star fish

5.4 Larval forms of Echinodermata

PhylumHemichordata

5.5Balanoglossus - Structure and affinities

UNIT- VI - COMPETITIVE ZOOLOGY

6.1: Cells-Cell Definition- Discovery of cells- Characteristics of cells- Types of cells.

6.2:Cell Structure-Cell Organelles and Functions. Cell Theory.

6.3Defference between Prokaryotic and Eukaryotic Cells

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Krishna Dt. A.P. (Autonomo	ous)
(Model question paper) Biology of Non – Chordates. Code – Zoo-101C Time: 3hrs. max.marks: 70	w.e.f. 2020-2021 <i>Title of the paper:</i>
Section A	
<u>Section – A</u>	
Answer any four questions. Each question carries five marks. Draw neat labeled diagrams wherever necessary.	4 x 5 = 20.
1.Spicules in Sycon.	
2. Structure of medusa in obelia.	
3. Life history of Ancylostomaduodenale .	
4. Coelomoducts in Annelida .	
5. Significance of Vermiculture .	
6. Affinities of Peripatus .	
7. Structure of Balanoglossus .	
8. Bipinnaria Larva.	
<u>Section – B</u>	
Answer any five questions. Each question carries Ten marks.	
Draw neat labeled diagrams wherever necessary.5 $x 10 = 50$.	
9.Elphidium shows alternation of generations in its life cycle – discuss.	
10.Write an account of canal system in Porifera.	
11.Describe briefly the phenomenon of polymorphism in Coelenterates.	
12. Describe the life history of Fasciola hepatica.	
13.Describe the excretory system in leech.	
14.Explain the respiratory system in prawn.	
15. Explain the process of pearl formation in pelecypoda.	
16.Describe the Water vascular system in Starfish.	

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Semester - I

Guide lines to the Paper Setter.

Title of the paper: Biology of Non – Chordates. Code – Zoo-101C

Time: 3hrs.

Max. Marks: 70.

1. Answer any **FOUR** questions out of eight in Section – A. Each question carries **<u>five</u>** marks.4x5 = 20M.

2. Answer any **Five** questions out of eight in Section – B. Each question carries **Ten** marks. 5x10=50M.

	Section	UNIT-I (Protozoa)	UNIT-II Porifera- Coelenterata)	UNIT-III platyhelminthes)	UNIT-IV Annelida- Arthropoda)	UNIT-V Mollusca Echinodermata
5 Marks Questions	A	2	2	2	2	2
10 Marks Questions	В	1	2	1	2	2
Weightage		20	30	20	30	30

Note: 1. please provide the scheme of valuation for the paper.

2. Question paper should be both in English and Telugu media.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt.,A.P. (AUTONOMOUS) <u>ZOOLOGY</u> PRACTICAL - I

w.e.f. 2020-2021 .Code :Zoo- 101P (2hrs/week) Biology of non-chordates

MAX.MARKS: 50.

1.INVERTEBRATES: Observation of the following slides/ specimens / models.

Protozoa -. Amoeba, Paramoecium, Paramoecium Binary fission and Conjugation, Vorticella,

Entamoebahistolytica, Plasmodium vivax

Porifera -Sycon, Spongilla, Euspongia, Sycon- T.S & L.S, Spicules, Gemmule

Coelenterata - Colony & Medusa, Aurelia, Physalia, Velella, Corallium, Gorgonia, Pennatulav

Platyhelminthes -Planaria, Fasciola hepatica, Fasciolalarval forms – Miracidium, Redia, Cercaria, Echinococcusgranulosus, Taeniasolium, Schistosomahaematobiumvii.

Nemathelminthes - Ascaris(Male & Female), Drancunculus, Ancylostoma, Wuchereria

Annelida -Nereis, Aphrodite, Chaetopteurs, Hirudinaria, Trochophore larva

Arthropoda - : Cancer, Palaemon, Scorpion, Scolopendra, Sacculina, Limulus, Peripatus, Larvae - Nauplius, Mysis, Zoea, Mouth parts of male &female Anopheles and Culex, Mouthparts of Housefly and Butterfly. xiii.

Mollusca - Chiton, Pila, Unio, Pteredo, Murex, Sepia, Loligo, Octopus, Nautilus, Glochidium

Echinodermata - Asterias, Ophiothrix, Echinus, Clypeaster, Cucumaria, Antedon, Bipinnaria larva

.Hemichordata- Balanoglossus, Tornaria larva.

Demonstration of dissection / dissected / Virtual Dissections.

- 1. Prawn Digestive system.
- 2. Prawn Appendages,
- 3. Prawn Nervous system,

4. Mounting of statocyst

6. Insect Mouth Parts.

Compulsory one species to be adopted for demonstration only by the faculty.

Computer Aided Techniques as per U.G.C Guidelines.

Laboratory record work shall be submitted at the time of Practical Examination.

A. G.& S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165

EXTERNAL PRACTICAL- I w.e.f. 2020-2021. (Animal Diversity of Invertebrates)

(2hrs/week)

(initial Diversity of invertebrates)
MODEL QUESTION PAPER -ICode: ZOO-101P

Time: 3 hrs.	Max.marks: 25m.
I. Draw neat labeled diagram of Digestive system Leech.	6М.
II. Draw neat labeled diagram of Radula of Pila.	4M.
III. Spotters: Identify, draw labeled diagram & write notes o	n
A, B, C, D	4X3=12M
IV. Viva.	3M
TOTAL:	25M.

Guide lines for the practical Examiners

 I. <u>List of dissections</u>: (8marks for diagram & 2 marks for labeling) Leech/Prawn/Scorpion/Crab- Digestive system. Prawn – Appendages. Prawn / Scorpion /Crab- Nervous system Pila / Unio – Digestive system.
 II.Mounting of Statocyst / Mounting of Radula. (Mounting 4 marks, labeled diagram 1 marks)

III.Spotters:1Mark for identification, 1 Mark for labeled diagram & 3Mark for notes for each spotter.

Invertebrates: 4 specimens / slides / models.

A. G.& S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165 INTERNAL PRACTICAL- I

w.e.f. 2020-2021.

(2 hrs/week).

(Animal Diversity of Invertebrates)Code: ZOO-101P. <u>MODEL QUESTION PAPER -I</u> Max.marks:25M.

Time: 3hrs.

- 1. Attendance ----- 05M.
- 2. Record -----10M.
- 3. Field note book. ----- 05M
- 4. Project (Within the syllabus)----- 05M.

Total ----- 25M.

Reference Books :-

1. Modern Text Book of Zoology - vertebrates...... R.L.Kotpal

2. A Text Book Zoology EkambarnathAyya

ADUSUMILLI GOPALKRISHNAIAH & SUGARCANE GROWERS SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU- 521165, KRISHNA Dt., A.P. (AUTONOMOUS) SEMESTER - III

w.e.f. - 2018 – 2019. Paper Code: ZOO -301C 60 Hrs (4hrs/ week)

Class: II B.Sc (B.Z.C) Max.Marks: 70 Credits: 3

Title of the Paper :Cytology, Genetics and Evolution.

Unit – I 10 Hrs

1.1Cytology - I :- Electron microscopic structure of cell .

1.2 Plasma membrane - Fluid mosaic model, Transport functions of plasma membrane (Active & Passive)

Unit – II 15 Hrs

2.1 Cell Organelles :- Stricture and functions of Endoplasmic reticulum, Golgi body, Ribosome's, Lysosomes, Mitochondria.

2.2 DNA: Watson & Crick model, Semi Conservative Replication.

2.3 RNA - Structure, types & functions of RNA.

2.4 Chromosomes - Structure, types & functions, Giant Chromosomes (lamp brush & Polytene)

Unit – III 10 Hrs

3.1 Genetics-I:- Mendel's Laws of Inheritance, Incomplete dominance and co-dominance **3.2** Lethal alleles, Epistasis, Linkage and crossing over.

Unit – IV 15 Hrs

4.1 Genetics – II :- Sex determination - Genic balance theory / Bridges theory, Barr bodies.

4.2 Sex linked inheritance.

4.3 Extra chromosomal inheritance (Kappa particles in Paramecium)

4.4 Blood group inheritance.

Unit – V 10 Hrs

5.1.Evolution:- Origin of life,. Hardy -Weinberg Equilibrium, Lamarckism ,Darwinism, Neo – Darwinism

5.2 Isolation, Speciation (Allopatric and Sympatric).

Unit – VI (COMPETITIVE ZOOLOGY)

6.1: Anatomy- Types of Anatomy- Classification of Anatomy

6.2: Application of Anatomy, Application of Gross Anatomy.

6.3: Physiology- Human Physiology- Endocrine system-Hormones- Mechanisms of Hormone Action.

6.4: Nervous system- nerve Cells- Organization of Nervous System Structurally.

6.5: White Blood Cells.

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Krishna Dt. A.P. (Autonomous)

Semester - III (Model question paper)

w.e.f.2018-2019

Title of the paper: Cytology, Genetic & Evolution.Code – Zoo-301C Time: 3hrs. Max. Marks: 70

<u>Section – A4x5 = 20.</u>

Answer any **Four** questions. Each question carries **<u>Five</u>** marks. Draw neat labeled diagrams wherever necessary.

1.Cytoplasam.

2.Fluid mosaic model.

3.Golgi body.

4. Mitochondria.

5. Crossing Over.

6. Linkage.

7.Barr bodies.

8.Hardy- Weinberg law.

<u>Section – B</u>

5 x 10 =50.

Answer any **five** questions. Each question carries **Ten** marks. Draw neat labeled diagrams wherever necessary.

9.Describe the ultra structure of Eukaryotic cell?

10. Give an account of structure and functions of Endoplasmic reticulum.

11. Describe the structure and functions of plasma membrane.

12.Explain the structure and types of chromosomes?

13.Describe the Mendel's laws of Inheritance?

14.Write an essay on Epistasis.

15.Explain sex determination with the help of Balance theory.

16. Write an essay on Isolation?

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A.G. & S.G.Siddhartha Degree College of Arts & Science, Vuyyuru – 521165, Krishna Dt. A.P. (Autonomous)

Semester - III

Guide lines to the Paper Setter. Evolution *W.e.f.* 2020-2021*Title of the paper:Cytology, Genetic & Code – Zoo-301C*

Time: 3hrs.

Max.marks:70

Max. Marks: 75m.

1. Answer any <u>FOUR</u> questions out of eight in Section .A. Each question carries **FIVE** marks. 4x5=20m.

2. Answer any **FIVE** questions out of eight in Section – B. Each question carries **TEN** marks. 5x10= 50M.

	PART	UNIT-I (Cytology I)	UNIT-II (Cell Organelles)	UNIT-III (Genetics-I)	UNIT-IV (Genetics-II)	UNIT-V (Evolution)
5 Marks Questions	Α	1	2	1	2	2
10 Marks Questions	В	1	2	1	2	2
Weightage		15	30	15	30	30

Note: 1. please provide the scheme of valuation for the paper.

2. Question paper should be both in English and Telugu media.

Reference Books :-

1.A Test Book of zoology: Vikram modern series: E.Chakrapani.

- 2. Cytology, Genetics & Ecology : P.S. Verma & V.K. Agarwal.
- 3. Common core -A test Book of Zoology: Sri Vikas Publication : C. Gopal.

A. G & S. G. S. DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU 521165, KRISHNA Dt., A.P. (AUTONOMOUS)

ZOOLOGY PRACTICAL SYLLABUS

PAPER – III

Class: II B.Sc 60 Hours/Week : 2 Credits: 2 Paper Title: Cytology, Genetics & Evolution.

Code : ZOO -301P C Max.Marks:50

I. Cytology

- 1. Preparation of temporary slides of Mitotic divisions with onion root tips
- 2. Observation of various stages of Mitosis and Meiosis with prepared slides
- 3. Mounting of salivary gland chromosomes of Chironomous

II. Genetics

- 1. Study of Mendelian inheritance using suitable examples
- 2. Study of linkage recombination, gene mapping using the data
- 3. Study of human karyotypes

III. Evolution

- 1. Study of fossil evidences
- 2. Study of homology and analogy from suitable specimens and pictures
- 3. Phylogeny of horse with pictures
- 4. Darwin's finches (pictures)
- 5. Visit to natural history museum and submission of report

A. G & S. G. S. DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU 521165, KRISHNA Dt., A.P. (AUTONOMOUS) PAPER – III

(Cytology, Genetics & Evolution)

Model Question paper (External)Max.Marks: 25 M.

Paper Code: ZOO-301C

1.Identify, draw neat labeled diagram & notes of the following stages. A & B <u>II. Genetics</u>	$2x2^{\frac{1}{2}} = 5M.$
 1.Genetics Problem. 2.Identify the following Chromosomes & Comment. A & B <u>III. Evolution</u> 	5M. $2x2^{\frac{1}{2}}=5M.$
1. Identify the given pictures and write the Comment. $\Delta \& B$	$2x2^{\frac{1}{2}} = 5M$
2.Identify the given pictures and Comment. A & B	$2x2^{\frac{1}{2}} = 5M$

A. G.& S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165 ZOOLOGY PRACTICAL -III

(INTERNAL)

(2hrs/week).

(<u>Cytology, Genetics & Evolution</u>) Code: ZOO-301P.

Max.marks:25M. Time: 3hrs.

I.Cytology

- 1. Attendance ----- 5M.
- 2. Record ------ 10M.
- 3. Field trip & Field note book -----10M.

Total ----- 25M.

A. G & S. G. S. DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU 521165, KRISHNA Dt., A.P. (AUTONOMOUS) PAPER – III

Guide lines for the practical Examiner

Class: II B.Z.C Paper Title: (Cytology, Genetics & Evolution) w.e.f.2020-21. Max.Marks: 25 M. Paper Code: ZOO-301C I.Cytology $2x2^{\frac{1}{2}} = 5M.$ 1. Slide A from Mitosis & Slide B Meiosis. $\binom{1}{2}$ mark for identification, 1 mark for labeled diagram & 1 mark for comments) **II.Genetics** 2. Checker board 2M. Explanation 3M. $2x2^{\frac{1}{2}} = 5M$ 3. Identify & Comment on A& B (From Chromosomes). A-Identification – 1 M, Comment – $1^{1/2}$ M B-Identification -1 M, Comment $-1^{1/2}$ M **III.Evolution** 4. Identify & Comment on A&B(A- fossil evidence, B – Homology & Analogy) $2x2^{\frac{1}{2}} = 5M$ A-Identification -1 M, Comment $-1^{1/2}$ M B-Identification -1 M, Comment $-1^{1/2}$ M 5. Identify & Comment on A& B (A- Phylogeny of Horse, B – Darwin's Finches) $2x2^{\frac{1}{2}} = 5M$ A-Identification – 1 M, Comment – $1^{1/2}$ M B-Identification – 1 M, Comment – $1^{1/2}$ M

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(Zoology paper-V)

Class: III B.Sc (B.Z.C)	w.e.f 2017-2018.	
60 Hrs. (4hrs/week) Max.Marks: 70	Title of the Paper : Animal Biotechnology	Paper Code : 200 -501C

Unit 1:Tools of Recombinant DNA technology - Enzymes and Vectors 15 Hrs.

1.1. Restriction modification systems : Types I, II and III- Nomenclature, Applications of Type II restriction enzymes in genetic engineering ,DNA polymerases, transferase, kinases and phosphatases, and DNA ligases
1.2 Cloning Vectors: Properties of Cloning Vectors Plasmid vectors:pBR and pUC 18, Bacteriophage and, Cosmids.Artificial Chromosome Vectors: BACs, YACs,

Unit 2: Techniques of Recombinant DNA technology 15 Hrs

2.1 Cloning: Procedure of gene cloning, Use of linkers and adaptors.Microinjection, electroporation, biolisticmethod (gene gun). PCR:- Basics of PCR,Principle and Procedure of PCR.

2.2 DNA Sequencing: Sanger's method of DNA sequencing- traditional and automated sequencing.

2.3 Southern, Northern and Western blotting. DNA finger printing,

UNIT 3 Animal Cell Technology 10 Hrs.

3.1 Cell culture media: Natural and Synthetic, Types Cell cultures -: primary culture, secondary culture.

Continuous cell lines, Established Cell lines (common examples such as MRC, HeLa, CHO, BHK,)

3.2 Cryopreservation of cultures, Hybridoma Technology:- Cell fusion, Production of Monoclonal antibodies (mAb), Applications of mAb

3.3.Stem cells: Types of stem cells- Embryonic and Adult Stem Cells, Diabetes and Parkinson's diseases.

Unit 4: Reproductive Technologies & Transgenic Animals 10 Hrs

4.1 Manipulation of reproduction in animals, Artificial Insemination, In vitro fertilization.

4.2 Super ovulation, Embryo transfer, Embryo cloning.

4.3 Transgenic Animals- Production of Transgenic Animals- sheep, fish.

Unit 5: Applied Biotechnology 10 Hrs.

5.1Industry: Fermentation- Different types of Fermentation. Submerged & Solid state, batch, Fed batch & Continuous (Short notes only)

5.2 Downstream processing - Filtration, centrifugation, chromatography, spray drying,

5.3Fisheries : Polyploidy in fishes

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SEMESTER-V (Model Question paper)

w.e.f.- 2017-201

Time : 3 hrs *Paper Title: Animal Biotechnology.*

Paper Code : 501C

Max.Marks:70

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<u> Part – A</u>

Answer <u>any FOUR</u> questions out of eight in Part - A . Each question carries five marks. $4 \times 5 = 25$ <u>Part - B</u>

1.Ligases

2.YAC

3.Southern Blotting

4.DNA Fingerprinting

5. Applications of mAb

6.Polyploidy in fishes

7.Invitro fertilization

8.Chromatography

<u>Part – B</u>

Answer <u>any FIVE</u> questions out of eight in Part - B .Each question carries Ten marks. $5 \times 10 = 50$

9. Write an essay on cloning vectors.

10. Explain the role of Type II Restriction enzymes in genetic engineering.

11. Define gene cloning .Describe the procedure of gene cloning in detail.

12. What is PCR. Briefly describe various steps of PCR.

13. Define Stem Cell Technology ? Briefly describe about it.

14. Write in detail about the transgenic animals.

15. Write an essay on different types of fermentation.

16. Briefly describe the technology of super ovulation and Embryo transfer in cattle's and discuss their applications and limitations.

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SEMESTER-V

Time :3 hrs

Max.Marks:70

Paper Title : Animal Biotechnology

Guide lines to the paper setter

Paper Code : 501C

Note : 1.Answer **any FOUR** questions out of eight in Part-A . Each question carries five marks.4X = 20M.

2. Answer **anyFIVE** questions out of eight in Part-B. Each question carries 10 marks. $5 \times 10 = 50M$.

	PART	Unit – I	Unit – II	Unit – III	Unit – IV	Unit – V
5 Marks Questions	Α	2	2	1	1	2
10 Marks Questions	В	2	2	1	2	1
Weightage		30	30	15	25	20

Note: 1. Please provide the scheme of valuation for the paper.

2. Question paper should be both in English and Telugu media.

Reference Books :-

1. Brown TA. (2010). Gene Cloning and DNA Analysis. 6th edition. Blackwell Publishing, Oxford,U.K

2. Clark DP and Pazdernik NJ. (2009). Biotechnology: Applying the Genetic Revolution. ElsevierAcademic Press, USA

3. Primrose SB and Twyman RM. (2006). Principles of Gene Manipulation and Genomics, 7th edition. Blackwell Publishing, Oxford, U.K.

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ZOOLOGY PRACTICAL SYLLABUS

PAPER - V

Periods : 30Code: ZOO-501P Credits :2Paper Title : Animal Biotechnology Max.Marks:50

1. Genomic DNA isolation from E. coli.

2. Plasmid DNA isolation (pUC 18/19) from E. coli.

3. Study the following techniques through photographs.

a. Southern blotting.

b. Western blotting.

- c. DNA sequencing (Sanger's method)
- d. DNA finger printing

4. PCR (demonstration) on site or of site demonstration.

5. Project report on animal cell culture.

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Practical - V	
Animal Biotechnology	Max. Marks : 25
Model Question Paper (External)	Paper Code : ZOO-501P

Identify the following Genomic DNA isolation from *E. coli*.5m
 Identify the following Plasmid DNA isolation (pUC 18/19) from *E. coli*. 5m
 Study the following techniques given on photographs & Write notes on. 2x5=10

 A & B
 PCR (demonstration) on site or of site demonstration.
 5m

Total: 25m

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Guide lines for the Practical Examiners.

Class: III B.Z.C Paper Title: Animal Biotechnology. Max.Marks: 25 M.

w.e.f.2017-18

Paper Code: ZOO-501C

1. Identify the following Genomic DNA isolation from *E. coli*. (5 marks for Procedure)

2. Identify the following Plasmid DNA isolation (pUC 18/19) from *E. coli* . (5 marks for Procedure)

3. Study the following techniques given on photographs & Write notes on A & B. (1 mark for identification & 4 marks for diagram and notes, for each photographs)

4. PCR (demonstration) on site or of site demonstration. (5 marks for PCR demonstration)

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Practical – V Animal Biotechnology Max. Marks : 25 Model Question Paper (Internal) Paper Code : ZOO-501P

1. Attendance	 5 M
2. Record	 10M
3. Field trip & Field note book	 10M

Total -- 25M

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SEMESTER - V

(Zoology paper-VI)

Class: III B.Sc (B.Z.C)

w.e.f.-2017 -18 Paper Code : ZOO -502C

60 Hrs(6hrs/ week) External : 70Credits :3 Title of the Paper :**Animal Husbandry**.

UNIT – I :10 Hours

1.1 General introduction to poultry farming, Principles of poultry housing. Poultry houses.

1.2 Systems of poultry farming.

1.3 Management of chicks, growers, layers, and Broilers.

UNIT – II:

2.1. Poultry feed management – Principles of feeding. Nutrient requirements for different stages of layers and broilers.

2.2. Methods of feeding- Whole grain feeding system, Grain and mash method, All mash method, Pellet feeding.

2.3. Poultry diseases – viral, bacterial, fungal and parasitic (two each); symptoms, control and management.

UNIT – III:

3.1 Selection, care and handling of hatching eggs, Egg testing.

- 3.2 Methods of hatching.
- 3.3 Brooding and rearing, Sexing of chicks.

UNIT-IV:

20 Hours

10 Hours

10 Hours

10 Hours

4.1 Breeds of Dairy Cattle and Buffaloes – Definition of breed; Classification of Indian Cattle breeds, exotic breeds and Indian buffalo breeds.

4.2 Systems of inbreeding and crossbreeding.

4.3 Housing of dairy animals – Selection of site for dairy farm; systems of housing – loose,

housing system. Conventional dairy barn

UNIT - V:

5.1 Care and management of dairy animals - Care and management of calf, heifer, milk animal, dry and pregnant animal, bulls and bullocks.

5.2 Cleaning and sanitation of programme. Records to be maintained in a dairy farm.

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SEMESTER-V (Model Question paper)

Time : 3 hrsPaper Code : Zoo-502C Max.Marks:70 Paper Title : Animal Husbandry

Part – A

Answer <u>any FOUR</u> questions out of eight in Part - A . Each question carries five marks. $4 \times 5 = 25$

- 1. Principles of poultry farming.
- 2. Chick management.
- 3. Poultry feed management .
- 4. Marek's disease.
- 5. Egg testing (Candle test)
- 6. Cleaning and sanitation of Dairy farm.
- 7. Milk record register
- 8. Loose housing system

Part – B

Answer <u>any five</u> questions out of eight in Part - B .Each question carries Ten marks. $5 \times 10 = 50$

- 9. Write an essay on systems of poultry farming
- 10 .Write an essay on management of Broilers
- 11. Write an essay on symptoms control and management of two viral and bacterial diseases.
- 12. Write an essay on methods of feeding in Poultry
- 13. Write an essay on different methods of hatching eggs
- 14. Give an account of breeds of Indian Cows
- 15. Explain the vaccination programme in Cattle
- 16. write an essay on care and management of Calf, heifer and milk animals

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SEMESTER-V

Time :3 hrs		Max.Marks:70
Paper Title : Animal Husbandry.	Guide lines to the paper setter	Paper Code : 502C

Note : 1. Answer <u>any FOUR</u> questions out of eight in Part-A. Each question carries five marks.4 X 5 = 25M.

2. Answer <u>any five</u> questions out of eight in Part-B. Each question carries 10 marks. $5 \times 10 = 50M$.

	PART	Unit – I	Unit – II	Unit – III	Unit – IV	Unit – V
5 Marks Questions	Α	2	2	1	2	1
10 Marks Questions	В	2	2	1	2	1
Weightage		30	30	15	30	15

1. Please provide the scheme of valuation for the paper. Note:

2. Question paper should be both in English and Telugu media.

Text Books :-

- 1. Animal Husbandry: ---- Technical Test paper.
- 2. Poultry- Technical Revised Common Core.
- 3. Animal Husbandry --- Dr.K.Kondaiah, A.V.N.Gupta.

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ZOOLOGY PRACTICAL SYLLABUS

Period : 30 PAPER – VICredits :2 Animal HusbandryPaper Code : Zoo-502P Max.Marks:50 Paper Title :

1. Study of various breeds of layers and broilers (photographs)

2. Identification of disease causing organisms in poultry birds (as per theory)

3. Study of the anatomy of a poultry bird by way of dissecting a bird. (Demonstration)

4. Study of various activities in a poultry farm (layers and broilers) and submission of a report.

5. Study of various breeds of cattle (photographs/microfilms)

6. Study of various activities carried out in a dairy farm and submission of a report.

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Model Question Paper (External) Paper Code : ZOO-502P	
1. Study of various breeds of layers and broilers (photographs) A & B	2X2 ^{1/} 2=5M
2. Identification of disease causing organisms in poultry birds (as per theory) A & B	2X2 ^{1/} 2=5M
3. Study of the anatomy of a poultry bird by way of dissecting a bird. (Demonstration)	5M
4. Study of various breeds of cattle (photographs/microfilms)	2X5=10M

A &B

Total -- 25M

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Guide lines for the Practical Examiners.Max.Marks: 25m Class: III B.Z.C Paper Code : ZOO-502C Paper Title: (Animal Husbandry)

 Identify and comment on A & B (Charts / Photographs). (Identification - ^{1/}₂ mark & Comments -2m)
 Identifyand comment on A & B (Charts / Photographs (Identification - ^{1/}₂ mark & Comments -2m)

3. Demonstration : (4 marks for diagram & 1 marks for labeling)

4. Identify and comment on A & B (Photographs/ microfilms). (Identification -1 mark & Comments -4m)

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Practical - V (Animal Husbandry)

Max. Marks : 50

Model Question Paper (Internal) Paper Code : ZOO-502P

1. Attendance		5 M
2. Record		10M
3. Field trip & Field note book (Any	one)	10M

Total -- 25M