PVKN Govt. College(A), Chittoor

I B.Sc., SEMESTER – I: ZOOLOGY, PAPER – I
TITLE OF THE PAPER: ANIMAL DIVERSITY –I BIOLOGY OF NON-CHORDATES

Subject Code: 20-ZOO-1C1 **Credits: 04** **Teaching Hrs/Week :04**

SYLLABUS

UNIT- I; PHYLUM PROTOZOA

1.1Principles of Taxonomy – Binomial nomenclature – Rules of nomenclature 1.2 Whittaker's five kingdom concept and classification of Animal Kingdom. Phylum Protozoa 1.3 General Characters and classification of protozoa up to classes with suitable examples 1.4. Locomotion, nutrition and reproduction in Protozoans 1.5 Elphidium External features and Life cycle

UNIT –II:

PHYLUM PORIFERA

2.1 General characters and classification up to classes with suitable examples2.2 Skelton in Sponges 2.3 Canal system in sponges.

PHYLUM COELENTERATA2.4General characters and classification up to classes with suitable examples2.5 Metagenesis in Obelia 2.6 Polymorphism in coelenterates 2.7 Corals and coral reefs Formation Phylum Ctenophora: 2.8 General Characters and Evolutionary significance(affinities)

UNIT – III:

PHYLUM PLATYHELMINTHES

3.1 General characters and classification up to classes with suitable examples 3.2 pathogenecity of Fasciola hepatica,Taenia solium, Taenia Saginata3.3 Parasitic Adaptations in helminthes

PHYLUM NEMATI HELMINTHES3.4 General characters and classification up to classes with suitable examples 3.5. Life cycle and pathogenecity of Ascarislumbricoides

UNIT – IV:

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

4.4General characters and classification up to classes with suitable examples 4.5 Laravalfromsin Crustacea 4.6 Metamorphosis in Insects

4.8. Biological control of Insects

4.9 PERIPATUS- Structure and affinities

UNIT–V:

PHYLUM MOLLUSCA

5.1 General characters and classification up to classes with suitable examples 5.2 Pearl formation in Pelecypoda 5.3Sense organs in Mollusca

PHYLUM ECHINODERMATA

5.4General characters and classification up to classes with suitable examples 5.5 Water vascular system in star fish 5.6 Larval forms of Echinodermata

PHYLUM HEMICHORDATA

5.7 General characters and classification up to classes with suitable examples5.8 Balanoglossus - Structure and affinities.

REFERENCE BOOKS

1. L.H. Hyman 'The Invertebrates' Vol I, II and V. – M.C. Graw Hill Company Ltd.
2. Kotpal, R.L. 1988 - 1992 Protozoa, Porifera, Coelenterata, Helminthes, Arthropoda, Mollusca, Echinodermata. Rastogi Publications, Meerut.
3. E.L. Jordan and P.S. Verma 'Invertebrate Zoology' S. Chand and Company.
4. R.D. Barnes 'Invertebrate Zoology' by: W.B. Saunders CO., 1986.
5. Barrington. E.J.W., 'Invertebrate structure and Function' by ELBS.
6. P.S. Dhami and J.K. Dhami. Invertebrate Zoology. S. Chand and Co. New Delhi.
7. Parker, T.J. and Haswell'A text book of Zoology' by, W.A., Mac Millan Co. London
8. Barnes, R.D. (1982). Invertebrate Zoology, V Edition"

PVKN Govt. College(A), Chittoor

I B.Sc., SEMESTER –I: ZOOLOGY, PAPER – I

Subject Code: 20-ZOO-1C1

BLUE PRINT FOR THE MODEL PAPER

S. No.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	SECTION-A (Short answer questions)	8	5	40	5	5	25
2	SECTION-B (Essay type questions)	10	10	100	5	10	50
Total Marks				**140**	**Total Marks**		**75**

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Essay Question 10 Marks	Short Questions 5 Marks	Marks allotted to the Chapter
UNIT - I	2	2	30
UNIT - II	2	2	30
UNIT - III	2	2	30
UNIT - IV	2	1	25
UNIT - V	2	1	25
Total No. of Questions	**10**	**8**	**140**

PVKN Govt. College (A), Chittoor

I B.Sc., SEMESTER-I:ZOOLOGY, PAPER-I

TITLE OF PAPER: ANIMAL DIVERSITY – BIOLOGY OF NON-CHORDATES

Subject Code: 20-ZOO-1C1 **Time :3hrs** **Max Marks :75**

MODEL QUESTION PAPER

SECTION-A

I. Answer any **FIVE** of the following. Daw labelled diagram wherever necessary **5X5=25**

1. Rules of nomenclature.
2. Skeletion in sponges.
3. coral reef formation.
4. Parasitic adaptations in helminthes.
5. Coelom in annelida.
6. Economical importance of vermicompost.
7. Affininities of peripatus.
8. Bipinneria larva.

SECTION-B

II. Answer any **FIVE** of the following. Daw labelled diagram wherever necessary **5X10=50**

9. Write an essay on locomotion in protozoa.

   OR

   Explain about the life history of Elphidium.

10. Write about the canal system in sponges

    OR

    Write the evolutionary significances of Ctenophora.

11. Describe the Life history of Fasciola hepatica

    OR

    Describe the Life history of Ascaris lumbricoidis

12. Explain about the process of vermiculture

OR

Explain about the social life in Bees

13. Describe the water vascular system in star fish

OR

Explain the formation of pearl in a pearl system

PVKN Govt. College(A), Chittoor

I B.SC., SEMESTER-I:ZOOLOGY, PAPER-I

TITLE OF THE PAPER: ANIMAL DIVERSITY -BIOLOGY OF NON-CHORDATES

Subject Code: 20-ZOO-101 **MAX. MARKS: 75**

QUESTION BANK

5 MARKS

1. What is binomial nomenclature. Give detailed account on it
2. Explain whittaker's five kingdom concept of classification
3. General characters of phylum protozoa
4. Types of pseudopod

10 marks

5. Explain sol – gel theory of amoeboid movement [pseudopodial movement]
6. Give brief account on ciliary and flagellary movement in protozoans
7. Explain about the classification of protozoans
8. Give various methods of a sexual reproduction in protozoa
9. Explain about the conjugation in protozoa
10. Structure and Life history of Elphidiu

UNIT- II

5 MARKS

1. Skeleton in sponges
2. Corals
3. Coral reefs
4. Ctenophora
5. Hydrozoa
6. Anthozoa

1O MARKS

7. Give detailed account on canal system in sponges
8. Explain polymorphism in coelenterates

UNIT – III

5 MARKS

1. Parasitic adaptations in helminthes
2. Turbelleria
3. Trematoda
4. Cestoda

10 MARKS

5. Describe the Life history of Fasciola hepatica
6. Explain the Life history of Ascaris lumbricoidis

UNIT – IV

5 MARKS

1. Coelomoducts
2. Vermicompost
3. Metamorphosis in insects
4. Types of communications in Bees
5. Write about types of bees in heive

10 MARKS

6. Describe the patterns of evolution of coelom
7. Write an essay on vermiculture
8. Describe the Tracheal respiration in arthropoda
9. Describe the structure and affinities of peripatus

UNIT – V

5 MARKS

1. Pearl formation in pelecypoda
2. Structure of Balanoglossus

10 MARKS

3. Explain about the water vascular system in star fish
4. Explain about the classification of Echinodermata
5. Write about the affinities of Balanoglossus

PVKN Govt. College(A), Chittoor
I B.Sc., SEMESTER – II: ZOOLOGY PAPER – II
TITLE OF THE PAPER: ANIMAL DIVERSITY OF CHORDATES
Subject Code: 20-ZOO-202 Credits: 04 Teaching Hrs/Week: 4

SYLLABUS

Unit - I

1.1 General characters and classification of Chordata upto classes

1.2 Protochordate- Salient features of Cephalochordate , Affinities of Cephalochordate.

1.3 Salient features of Urochordata

1.4 Structure and life history of Herdmania

1.5 Retrogressive metamorphosis –Process and Significance

Unit - II

2.1 Cyclostomata, General characters, Comparison of Petromyzon and Myxine

2.2 Pisces : General characters and classification of Fishes

2.3 Scoliodon: External features, Digestive system, Respiratory system, Structure and function of Heart, Structure and functions of the Brain.

2.4 Migration in Fishes

2.5 Types of Scales

2.6 Dipnoi

Unit - III

3.1 General characters of Amphibia

3.2 Parental care in Amphibia

3.3 Classification of Amphibia up to orders with examples.

3. 4 Ranahexadactyla: External features, Digestive system, Respiratory system, Structure and function of Heart, structure and functions of the Brain

3.5 Reptilia: General characters of Reptilia, Classification of Reptilia upto orders withexamples

3.6 Calotes:External features, Digestive system, Respiratory system, Structure and function

of Heart, structure and function of Brain

3.7. Identification of Poisonous snakes and non- poisonous snakes and Skull in reptiles

Unit - IV

4.1 Aves General characters of Aves

4.2 Columba livia: External features, Digestive system, Respiratory system

4.3 Migration in Birds

4.4 Flight adaptation in birds

Unit - V

5.1 General characters of Mammalia

5.2 Classification of Mammalia upto sub - classes with examples

5.3 Comparision of Prototherians, Metatherians and Eutherians

5.4 Dentition in mammals

REFERENCE BOOKS

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- Arumugam, N. Chordate Zoology, Vol. 2. SarasPlublication. 278 pages. 200 figs.
- A.J. Marshall, 1995. Textbook of zoology, Vertebrates. (The McMillan Press Ltd., UK). 852 pages. (Revised edition of Parker &Haswell, 1961).
- M. EkambaranathaAyyar, 1973. A manual of zoology. Part II. (S. ViswanathanPvt. Ltd., Madras).
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- Gurdarshan Singh & H. Bhaskar, 2002. Advanced Chordate Zoology. Campus Books, 6 Vols., 1573 pp., tables, figs.
- A.K. Sinha, S. Adhikari& B.B. Ganguly, 1978. Biology of animals. Vol. II. Chordates. (New Central Book Agency, Calcutta). 560 pages.
- R.L.Kotpal, 2000. Modern textbook of zoology, Vertebrates. (Rastogi Publ., Meerut). 632 pages.
- E.L. Jordan & P.S. Verma, 1998. Chordate zoology. (S. Chand & Co.). 1092 pages.
- G.S. Sandhu, 2005. Objective Chordate Zoology. Campus Books, vii, 169 pp.
- Sandhu, G.S. & H. Bhaskar, H. 2004. Textbook of Chordate Zoology. Campus Books, 2 vols., xx, 964 p., figs.
- Veena, 2008. Lower Chordata. (Sonali Publ.), 374 p., tables, 117 figs.

Additional Inputs

1. Evolutionary significance and development of Chordates
2. Instinctive behaviour of petromyzon
3. Structure of vertebral column
4. Milk generation in Pigeon Crop
5. Hotspots in Oriental region

PVKN Govt. College(A), Chittoor

I B.Sc., SEMESTER – II: ZOOLOGY PAPER – II

TITLE OF THE PAPER: ANIMAL DIVERSITY OF CHORDATES

Subject Code: 20-ZOO-202 Credits: 04 Teaching Hrs/Week: 4

BLUE PRINT FOR THE MODEL PAPER

S. No.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Short Answers	10	5	50	5	5	25
2	Essays	10	10	100	5	10	50

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Essay Question 10 Marks	Short Questions 5 Marks	Marks allotted to the Chapter
UNIT - I	2	2	15
UNIT - II	2	2	15
UNIT - III	2	2	15
UNIT - IV	2	2	15
UNIT - V	2	2	15
Total No. of Questions	**10**	**10**	**75**

PVKN Govt. College (A), Chittoor
I B.Sc., SEMESTER – II: Zoology (Subject) PAPER – II
Title of Paper: ANIMAL DIVERSITY OF CHORDATES
Subject Code: 20-ZOO-102 **Time :3hrs** **Max Marks : 75M**

MODEL QUESTION PAPER

PART – A

I. Answer Any **Five** of the following
Draw labeled diagrams wherever necessary
Each question carries Five marks 5x5=25

1. Amphioxus structure
2. Placoid scale
3. Quill feather
4. Prototheria
5. Anadromous migration
6. Draco
7. Emu
8. Apoda
9. Dipnoi
10. Structure of Tooth

PART – B

II. Answer any FIVE of the following: 5x10=50
Draw labeled diagrams wherever necessary

11. Explain the life history of Herdmania
(or)
Describe the general characters of chordates

12. Compare the characters of Petromyzon and Myxine
(or)
Describe the structure of heart of Scoliodon

13. Describe the brain of Ranahexadactyla
(or)
General characters and classification of Reptelia

14. Write an essay on flight adaptations in birds
(or)
Explain the respiratory system of Columba livia

15. Compare the characters of Metatheria and Eutheria
(or)
Write an essay on dentition in mammal

PVKN Govt. College(A), Chittoor
II B.Sc., SEMESTER – III: ZOOLOGY PAPER – III

TITLE OF THE PAPER: CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

Subject Code: 21-ZOO-301 Credits: 03 Teaching Hrs/Week: 4

SYLLABUS
Unit - I

Unit–I Cell Biology

1.1 Definition, history ,prokaryotic and eukaryotic cells, corona virus structure

1.2 Electronmicroscopic structureofanimalcell.

1.3 Plasma membrane–Models and transport functions (Active transport, passive transport, diffusion and Osmosis) of plasma membrane

1.4Structureandfunctions of Golgi complex, Endoplasmic Reticulum and Lysosomes

1.5Structureand functionsofRibosomes,Mitochondria, Nucleus,Chromosomes

(Note:1.General pattern of study of each cell organelle–
Discovery,Occurrence,Number,Origin, Structure and Functions with suitable diagrams**)**

2.Need not study cellular respiration under mitochondrial functions)

Unit–II Genetics -I

2. 1 Mendel'sworkontransmissionoftraits

2. 2 Gene Interaction–Incomplete Dominance ,Codominance , Lethal Genes and Epistasis

2. 3 Multiple Alleles(General Characteristics and Blood group inheritance

2.4.Sexdetermination(Chromosomal,GenicBalance,Hormonal,Gynandromorphs
Environmental and Haplo-diploidy types of sexdetermination)

2. 5 Sex linked inheritance(X-linked eg: Color blindness, Haemophilia; Y-linked eg: Hypertrichosis & XY-linkedinheritance)

Unit–III Genetics -II

3.1 Mutations&Mutagenesis

3.2 Chromosomal Disorders (Autosomal :Downs, Edward and Criduchat syndromes and Allosomal: Kleinefelter and turner syndromes)

3.3 Human Genetics– Karyotyping, Pedigree Analysis(basics)

3.4 BasicsonGenomicsand Proteomics

UNIT - IV: Molecular Biology

4.1 CentralDogmaofMolecularBiology
Basicconceptsof-

a. DNAreplication–Overview(Semi-conservativemechanism,Semi-discontinuousmode, Origin&Propagation ofreplication fork)

b. Transcriptioninprokaryotes–Initiation,ElongationandTermination,Post-transcriptionalmodifications (basics)

c. Translation– Initiation,ElongationandTermination

4.2 Gene Expression in prokaryotes (Lac Operon);

UNIT – V EVOLUTION

5.1 Theories of Evolution: Lamarckism ,Darwinism, Germ Plasma Theory, Mutation Theory

5.2 Neo-Darwinism: Modern Synthetic Theory of Evolution, Hardy-Weinberg Equilibrium

5.3Forces of Evolution :Isolating mechanisms, Genetic Drift, Natural Selection, Speciation

PVKN Govt. College(A), Chittoor

II B.Sc., SEMESTER – III: ZOOLOGY PAPER – III

TITLE OF THE PAPER: CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

Subject Code: 21-ZOO-301 Credits: 03 Teaching Hrs/Week: 4

BLUE PRINT FOR THE MODEL PAPER

S. No.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Short Answers	10	5	50	5	5	25
2	Essays	10	10	100	5	10	50

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Essay Question 10 Marks	Short Questions 5 Marks	Marks allotted to the Chapter
UNIT - I	2	2	15
UNIT - II	2	2	15
UNIT - III	2	2	15
UNIT - IV	2	2	15
UNIT - V	2	2	15
Total No. of Questions	**10**	**10**	**75**

PVKN Govt. College(A), Chittoor

II B.Sc., SEMESTER – III: ZOOLOGY PAPER – III

TITLE OF THE PAPER: CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

Subject Code: 21-ZOO-301 **Credits: 04** **Teaching Hrs/Week: 4**

MODEL QUESTION PAPER

PART – A

I. Answer Any **Five** of the following
Draw labeled diagrams wherever necessary
Each question carries Five marks 5x5=25

1. Golgicomplex
2. Lysosomes
3. IncompleteDominance
4. Lethal genes
5. Karyotyping
6. Edward syndrome
7. Post-transcriptionalmodifications
8. replication fork
9. Darwinism
10. Genetic drift

PART – B

II. Answer any FIVE of the following: 5x10=50
Draw labeled diagrams wherever necessary

11. A. Describe the Electronmicroscopic structureofanimalcell

(or)

B. Explain the various functions of plasma membrane

12. A. MultipleAlleles

(or)

B. Explain the Sexlinked Inheritance with two examples

13. A.Mutations

(or)

B. Describe the various Chromosomal disorders

14. A. Describe the process of DNA replication

(or)

B. Lac operon

15. A. Isolation

(or)

B.Neo Darwinism

PVKN Govt. College(A), Chittoor

II B.Sc., SEMESTER – III: ZOOLOGY PAPER – III

TITLE OF THE PAPER: CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

Subject Code: 21-ZOO-301 Credits: 04 Teaching Hrs/Week: 4

QUESTION BANK

UNIT – I – (Cell Biology)

Short Answer Type Questions:

1. Viroid.
2. Mycoplasma.
3. Lysosomes.
4. Glogicomplex.

Long Answer Type Questions:

1. Explain about structure of plasma membrane.
2. Describe structure and functions of Ribosome.
3. Give detailed account on electron microscopic structure of animal cell.

UNIT – II – (Genetics-I)

Short Answer Type Questions:

1. Incomplete Dominance.
2. Lethal genes.
3. Co dominance.

Long Answer Type Questions:

1. Write about multiple alleles.
2. Describe the Chromosomal method of determination of sex
3. Write an essay on genetic balance theory of sex determination in Drosophila
4. Explain about X-Linked inheritance.

UNIT – III – (Genetics-II)

Short Answer Type Questions:

1. Kleinefelter syndrome.
2. Turner's syndrome.
3. What is genomics.

Long Answers Type Questions:

1. Mutatiions.
2. Write about Chromosomal disorders.

UNIT – IV – (Molecular Biology)

Short Answer Type Questions:

1. Origin of replication fork.
2. Semiconservative method of DNA replication.
3. Explain about gene expression in Eukaryotes.

Long Answers Type Questions:

1. Write an essay on DNA replication.
2. Write about transcription in prokaryotes.
3. Explain the process of translation.

UNIT –V – (Evolution)

Short Answer Type Questions:

1. Darwinism.
2. Lamarkism.
3. Genetic drift.

Long Answers Type Questions:

1. Write an essay on Isolation.
2. Speciation.
3. Discuss about modern synthetic theory of evolution.

PVKN Govt. College(A), Chittoor

IInd B.Sc., SEMESTER –IV: Zoology PAPER – 4

(ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY)

Subject Code: 21-ZOO-4C4 Credits : 03 Teaching Hrs/Week : 4

UNIT I Animal Physiology

I 1.1 Process of digestion , absorption and assimilation

1.2 Respiration - Pulmonary ventilation, transport of oxygen and CO2 (Note: Need not study cellular respiration here) And Respiratory pigments in various animals.

1.3 Circulation - Structure and functioning of heart, Cardiac cycle . And MAP (Mean atrial pressure) .

1.4 Excretion - Structure and functions of kidney urine formation, counter current Mechanism **UN IT II Animal Physiology - II**

2.1Nerve impulse transmission - Resting membrane potential, origin and propagation of action potentials along myelinated and non-myelinated nerve fibers

2.2Muscle contraction - Ultra structure of muscle, molecular and chemical basis of muscle contraction

2.3 Endocrine glands - Structure, functions of hormones of pituitary, thyroid, parathyroid, adrenal glands and pancreas

2.4 Hormonal control of reproduction in a mammal

UNIT III Cellular Metabolism – I (Biomolecules)

3.1 Carbohydrates - Classification of carbohydrates. Structure of glucose

3.2 Proteins - Classification of proteins. General properties of amino acids

3.3 Lipids - Classification of lipids

3.4 Enzymes: Classification and Mechanism of Action

UNIT IV Cellular Metabolism – II

4.1Carbohydrate Metabolism - Glycolysis, Krebs cycle, Electron Transport Chain, Glycogen metabolism, Gluconeogenesis

4.2 Lipid Metabolism – β-oxidation of palmitic acid

4.3 Protein metabolism - Transamination, Deamination and Urea Cycle

Unit – V Embryology

5.1 Gametogenesis

5.2 Fertilization

5.3 Types of eggs

5.4 Types of cleavages

5. 5 Development of Frog upto formation of primary germ layers

PVKN Govt. College(A), Chittoor

II[nd] B.Sc., SEMESTER –IV: Zoology PAPER – 4

(ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY)

Subject Code: 21-Zoo-4C4 Credits : 03 Teaching Hrs/Week : 4

BLUE PRINT FOR THE MODEL PAPER

S. No.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Short Answers	8	5	40	5	5	25
2	Essays	10	10	100	5	10	50
							75

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Essay Question 10 Marks	Short Questions 5 Marks	Marks allotted to the Chapter
UNIT - I	2	2	30
UNIT - II	2	2	30
UNIT - III	2	1	25
UNIT - IV	2	1	25
UNIT - V	2	2	30
Total No. of Questions	**10**	**8**	**140**

PVKN Govt. College (A), Chittoor

II B.Sc., SEMESTER – IV: ZOOLOGY (Subject) PAPER –IV

Title of the Paper:(ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY)

Subject Code: 21-ZOO-4C4 **Time: 3Hrs** **Max Marks : 75M**

MODEL QUESTION PAPER

SECTION – A

Answer any Five of the following Questions **5X5 =25 Marks**

1. Cardiac cycle
2. Chloride shift
3. Synaptic transmission
4. Write about hormones of Adenohypopyhsis
5. Classification of lipids
6. Urea cycle.
7. Types of Eggs
8. Cleavages pattern in dueterostomians.

SECTION – B

Answer ALL the following Questions **5X10 =50 Marks**

Unit –I

1. Write about the carbohydrates and protein digestion

(or)

Describe the structure of human heart

Unit- II

2. Explain the sliding theory of muscle contraction.

(or)

Describe process of transmision of nerve impulse through myelenated nerve fibre

Unit –III

3 Write about the classification of proteins

(or)

Dscribe the theories of mechanism of enzyme action

Unit- IV

4 Give detailed account on Glycolysis

(or)

Discuss the Kreb's cycle

Unit –V

5. Describe Gametogenesis

(or)

Write an essay on Fertilization

PVKN Govt. College (A), Chittoor

II B.Sc., SEMESTER – IV: ZOOLOGY (Subject) PAPER –IV

Title of the Paper:(ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY)

Subject Code: 21-ZOO-401 **Time: 3Hrs** **Max Marks : 75M**

Short questions.

1. Obsorption

2. assimilation:

3. Carbondioxide transport

4. Cardiac cycle

5. kidney structure

6. Resting. Potensial

7. skeleton muscle structure

8. thyroid

9. adrenal gland

10. pancreas

11. structure of glucose

12. general propeites of amino quetds.

13. Enzyme action of mechanism

14.. electron transpor

15. gluconeogenesis

16. Transamination

17. Urea cycle

18. Oogenesis

19..fertilisation

20. Types of eggs

questionsEssay :-

1. Process of digestion of carbohydrates
2. Process of protein digestion
3. Explain the Transport of oxygen
4. Describe the Structure and function of heart
5. Explain the Urine formation
6. Explain the Counter current mechanism
7. Explain the nerve impulse transmission
8. Describe the muscle contraction
9. Describe the pituitary gland
10. Explain the Hormonal control of reproduction in mammal
11. Classification of carbohydrates
12. Classification of proteins
13. Classification of lipids
14. Explain the Glycolysis
15. Explain the Krebs cycle
16. Beta. Oxidation of palmatic acid
16. Explain the Spermatogenesis
17. Describ the Types of cleavages
18. Explain the Development of frong upto formation of primary germ layers

PVKN Govt. College(A), Chittoor

IInd B.Sc., SEMESTER –IV: Zoology PAPER – 5

Title of the paper;' (imuunologg amd animal biotechnology)

Subject Code: 21-ZOO-4C5 Credits : 03 Teaching Hrs/week ;4

Unit – I Immunology – I

(Overview of Immune system)

1.1 Introduction to basic concepts in Immunology

1.2 Innat and adaptive immunity, Vaccines and Immunization programme

1.3 Cells of immune system

1.4 Organs of immune system

Unit – II Immunology – II

(Antigens, Antibodies, MHC and Hypersensitivity)

2.1 Antigens: Basic properties of antigens, B and T cell epitopes, haptens and adjuvants; Factors influencing immunogenicity

2.2 Antibodies: Structure of antibody, Classes and functions of antibodies

2.3 Structure and functions of major histocompatibility complexes

2.4 Exogenous and Endogenous pathways of antigen presentation and processing

2.5 Hypersensitivity – Classification and Types

Unit – III Techniques

3.1 Animal Cell, Tissue and Organ culture media: Natural and Synthetic media,

3.2 Cell cultures: Establishment of cell culture (primary culture, secondary culture, types of cell lines; Protocols for Primary Cell Culture); Established Cell lines (common examples such as MRC, HeLa, CHO, BHK, Vero); Organ culture; Cryopreservation of cultures

3.3 Stem cells: Types of stem cells and applications

3.4 Hybridoma Technology: Production & applications of Monoclonal antibodies (mAb)

Unit – IV Applications of Animal Biotechnology

4.1 Genetic Engineering:Basic concept, Vectors, Restriction Endonucleases and Recombinant DNA technology

4.2 Gene delivery:Microinjection, electroporation, biolistic method (gene gun), liposome and viral-mediated gene delivery

4.3 Transgenic Animals:Strategies of Gene transfer; Transgenic - sheep, - fish; a pplications

4.4 Manipulation of reproduction in animals:Artificial Insemination, In vitro fertilization, super ovulation, Embryo transfer, Embryo cloning

Unit - V

5.1. PCR:Basics of PCR.

5.2 DNA Sequencing: Sanger's method of DNA sequencing-traditional and automated sequencing (2 hrs)

5.3 Hybridization techniques: Southern, Northern and Western blotting

5.4 DNA fingerprinting: Procedure and applications

5.5 Applications in Industry and Agriculture: Fermentation: Different types of Fermentation and Downstream processing; Agriculture: Monoculture in fishes, polyploidy in fishes

PVKN Govt. College(A), Chittoor

II[nd] B.Sc., SEMESTER –IV: Zoology PAPER – 5
(IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY)
Subject Code: 21-Zoo-4C5 Credits : 03 Teaching Hrs/Week : 4

BLUE PRINT FOR THE MODEL PAPER

S. No.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Short Answers	08	5	40	5	5	25
2	Essays	10	10	100	5	10	50
							75

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Essay Question 10 Marks	Short Questions 5 Marks	Marks allotted to the Chapter
UNIT - I	2	2	20
UNIT - II	2	2	20
UNIT - III	2	2	20
UNIT - IV	2	1	15
UNIT - V	2	1	15
Total No. of Questions	**10**	08	--------

Signature of the Members **Signature of the BOS Chairman**

PVKN Govt. College(A), Chittoor

II[nd] B.Sc., SEMESTER –IV: Zoology PAPER – 5
(IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY)
Subject Code: 21-Zoo-4C5 Credits : 03 Teaching Hrs/Week : 4

MODEL PAPER

Section-A

Answer any five of the following , draw labelled diagram where ever nessary 5X5=25M

1) Adipative immunity

2) Bone marrow

3) Epitope

4) Properties of antigen

5) cryopreservation

6) Stem cells

7) Artificial insemination

8) Southern blotting

Secton-B

Answer all of the following questions , draw labelled diagram where ever nessary. 5X10=50M

9. a)write an essay on innate immunity

(or)

b)Explain the B and T- lymphocytes

10 . a) Describe the structure of antibody

(or)

b)Define the hyper sensitivity and explain the different types of hyper sensitivity

10. a)Explain the methodology involved in organ culture

(or)

b)explain the production and applications of monoclonal antibodies

12. a)describe the different techniques of gene transfer

(or)

b)define the transgenesis ? Explain the transgenic animals and their uses .

13. a) describe the steps involved in PCR technology .

(or)

b)describe the steps involved in DNA finger printing technology .

IV SEMESTER – PAPER-V

IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY

QUESTION BANK

UNIT – 1

1. Write about the basic concepts in immunology
2. What is immunity? Write about the types of immunity
3. Write about Vaccine
4. Write about the cells of immune system
5. What is Organ ? Write about the types of organs

Short Questions

1. Phagocytosis

2. Thymus Gland

3. Spleen

UNIT – 2

1. Write about the properties of Antigens
2. Describe the structure of Antibody and write the different types of antibodies
3. Write the structure and function of major histocompatibility
4. Write about the Hypersensistivity

Short Questions

5. Immunology
6. Haptens
7. Epitopes
8. Adjuvents

UNIT – 3

1. What is the animal cell culture ? Write about the material required for animal cell culture
2. Write about the methods of Animal cell culture
3. What are the stem cells? Write about the stem cells in the prevention of Diseases
4. Write about the Hybridoma Technology
5. Write about the production of applications of Monoclonal antibodies

Short Questions

6. Natural media

7. Cryopreservation

UNIT – 4

1. What is Transgenesis? Write the method of Transgenesis
2. Write about the Transgenic animals and their uses
3. Write an essay on Plasmids
4. Write an essay on Restriction endonucleases

Short Questions

5. Invitro fertilization
6. Cosmids
7. Bacteriophage

UNIT - 5

1. Describe the steps involved in PCR Technology
2. Write about the Blotting Techniques
3. Describe the steps involved in DNA Fingerprinting technology
4. Write the applicative role of various methods of DNA sequencing

Short Questions

5. Fermentation
6. Polyploidy in Fishes
7. Monoculture

PVKN Govt. College(A), Chittoor
III B.Sc., SEMESTER – V: ZOOLOGY, PAPER – VII
TITLE OF THE PAPER: 7 C: POULTRY MANAGEMENT- II (POULTRY PRODUCTION AND MANAGEMENT)

Subject Code: 22-ZOO-SE2 **Credits: 03** **Teaching Hrs/Week :04**

Syllabus

Unit-1 HEALTH CARE

1.1 Common poultry diseases: bacterial, viral, and nutritional deficiencies.
1.2 Vaccination schedule for commercial layers and broilers: factors that govern vaccination schedule; vaccination principles type, methods, pre and post vaccination care.
1.3 Disinfection: Types of disinfectants; mode of action; recommended procedure; precaution and handling.

Unit-2 ECONOMICS

2.1 Economics of layer and broiler production
2.2 Projects reports in different systems of rearing for layer & broilers.
2.3 Export/import of poultry and poultry products**.**

Unit-3 BREEDER FLOCK MANAGEMENT

3.1 Layer and broiler breeder flock management housing & space requirements. 3.2 Different stage of management during life cycle; Light management during growing and laying period, Artificial insemination.
3.3 Feeding: Feed restriction, separate male feeding. Nutrient requirement of layer and broiler breeders of different age groups.

Unit-4 BREEDER HEALTHCARE

4.1 Vaccination of breeder flock; difference between vaccination schedule of broilers and commercial birds.
4.2 Common diseases of breeders (Infectious and metabolic disorders)-prevention.
4.3 Fertility disorder- etiology, diagnosis and corrective measures. Selection and culling of breeder flocks

Unit-5 HATCHERY PRACTICES

5.1 Management principles of incubation.
5.2Factors affecting fertility and hatchability. Selection, care and incubation of hatching eggs. Fumigation; sanitation and hatchery hygiene.

PVKN Govt. College(A), Chittoor
III B.Sc., SEMESTER – V: ZOOLOGY, PAPER – VII
TITLE OF THE PAPER: 7 C: POULTRY MANAGEMENT- II (POULTRY PRODUCTION AND MANAGEMENT)

Subject Code: 22-ZOO-SE2 **Credits: 03** **Teaching Hrs/Week :03**

BLUE PRINT FOR THE MODEL PAPER

S. No.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	SECTION-A (Very Short answer questions)	5	2	10	5	2	10
	SECTION-B (Short answer questions)	8	5	40	5	5	25
2	SECTION-B (Essay type questions)	6	10	60	4	10	40
Total Marks				**110**	**Total Marks**		**75**

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Very Short Questions 2 Marks	Short Questions 5 Marks	Essay Questions 10 Marks	Marks allotted to the Chapter
UNIT - I	1	2	2	32
UNIT - II	1	2	1	22
UNIT - III	1	2	1	22
UNIT - IV	1	1	1	17
UNIT - V	1	1	1	17
Total No. of Questions	**5**	**8**	**6**	**100**

PVKN Govt. College(A), Chittoor
III B.Sc., SEMESTER – V: ZOOLOGY, PAPER – VII
TITLE OF THE PAPER: 7 C: POULTRY MANAGEMENT- II (POULTRY PRODUCTION AND MANAGEMENT)

Subject Code: 22-ZOO-SE2

MODEL QUESTION PAPER

SECTION-A

(VERY SHORT ANSWER TYPE QUESTIONS)

I. Answer All the following questions.Each question carries TWO marks.Write one or two sentences of answer only **2X5=10 M**

1 Fowl cholera

2 layer

3 Artificial insemination.

4 Etiology

5 Fumigation;

SECTION-B

(SHORT ANSWER TYPE QUESTIONS)

II Answer any FIVE of the following Questions. Daw a labelled diagram wherever necessary **5X5=25 M**

6 Explain the bacterial diseases in poultry

7.Write about **Types of disinfectants in poultry**

8. Economics of layer

9.Economics of broiler

10. **Write Different stage of management during life cycle of fowl**

11. What are the **Nutrient requirement of layer and broiler breeders of different age groups.**

12.Write about **vaccination schedule of broilers**

13. Management principles of incubation

SECTION-C

(ESSAY ANSWER TYPE QUESTIONS)

III.Answer any **FOUR** of the following. Daw labelled diagram wherever necessary.

4**X10=40 M**

14. Explain any three Viral diseases in poultry

15. Vaccination schedule for commercial layers and broilers

16. Give brief account on Export/import of poultry and poultry products.

17. Discuss about Layer and broiler breeder flock management housing & space requirements.

18. What are the Common diseases of breeders.

19. Explain the Computer applications for hatchery management

PVKN Govt. College(A), Chittoor

III B.Sc., SEMESTER – V: ZOOLOGY, PAPER – VII-22-ZOO-SE2

TITLE OF THE PAPER: 7 C: POULTRY MANAGEMENT- II (POULTRY PRODUCTION AND MANAGEMENT)

QUESTION BANK

UNIT I

VERY SHORT ANSWER TYPE QUESTIONS (2 M)

1. Name any two bacterial diseases in poultry
2. Name any two viral diseases in poultry
3. What is vaccination
4. What are the types of disinfectants in poultry

SHORT ANSWER TYPE QUESTIONS (5 M)

5 Discuss about bacterial diseases in poultry
6Write short note on Types of disinfectants in poultry.

ESSAY ANSWER TYPE QUESTIONS (10 M)

7What is Vaccination schedule for commercial layers and broilers.Discuss about it.
8Discuss about bacterial and viral diseases in poultry

UNIT II

VERY SHORT ANSWER TYPE QUESTIONS (2 M)

9. Write any two names of poultry products.
10What is Economics of layer production
11. What is Economics of broiler production
12.Define layers in poultry
13.Define broiler in poultry
14.Define Poultry.

SHORT ANSWER TYPE QUESTIONS (5 M)

15.What are the poultry products.
16 Short notes on import of poultry and poultry products.

ESSAY ANSWER TYPE QUESTIONS (10 M)

17Economics of layer and broiler production
18Write essay on Export of poultry and poultry products.

UNIT III

VERY SHORT ANSWER TYPE QUESTIONS (2 M)

19What is housing in poultry.Give any Two types of housings.
20.What is Artificial insemination.

SHORT ANSWER TYPE QUESTIONS (5 M)

21. Write short notes on Layer breeder flock management housing & space requirements.
22.Write short notes on broiler breeder flock management housing & space requirements.
23. Give detailed notes on Nutrient requirement of layer breeders of different age groups.

ESSAY ANSWER TYPE QUESTIONS (10 M)

24 Describe the Nutrient requirement of layer and broiler breeders of different age groups.
25.Discuss the Layer and broiler breeder flock management housing & space requirements.

UNIT IV

VERY SHORT ANSWER TYPE QUESTIONS (2 M)

26.W rite any two Common diseases of breeders, in poultry
27.Define culling

SHORT ANSWER TYPE QUESTIONS (5 M)

28.Write short notes on Fertility disorder in poultry.
29. Write about vaccination schedule of broilers .

ESSAY ANSWER TYPE QUESTIONS (10 M)

30.Write an essay of Infectious and metabolic disorders of breeders and their prevention.
31. Discuss about differences between vaccination schedule of broilers and commercial birds.

UNIT V

VERY SHORT ANSWER TYPE QUESTIONS (2 M)

32.Define incubation.
33. Fumigation
34. Sanitation

SHORT ANSWER TYPE QUESTIONS (5 M)

35.Write a short notes on Factors affecting fertility and hatchability of eggs
36.Write a short notes on any two Management principles of incubation.

ESSAY ANSWER TYPE QUESTIONS (10 M)

37.Write an essay on Management principles of incubation.
38.Describe the Computer applications for hatchery management.

PVKN Govt. College(A), Chittoor
III B.Sc., SEMESTER – V: ZOOLOGY, PAPER – VI
TITLE OF THE PAPER: 6 C: POULTRY MANAGEMENT- I (POULTRY FARMING)

Subject Code: 22-ZOO-SE1 Credits: 03 Teaching Hrs/Week :03

Syllabus: (Total Hours: 90 including Teaching, Lab, Field Skills Training, Unit tests etc.)

Unit 1 Indian poultry Industry

1.1 Importance of poultry farming and poultry development in India.
1.2 Present status and future prospectus of poultry Industry
1.3 Classification of poultry based on genetics Utility

Unit -2 Scientific Poultry Keeping

2.1 Modern breeds of Chicken
2.2 Present day egg production lines-meat production lines
2.3 Mini breeds- dwarfism in mini-Leghorns

Unit-3 Diversified Poultry

3.1 Ducks and Geese-classification- rearing system-classification-advantages
3.2 Guinea fouls - guinea fowl farming in India-Production-varieties
3.3 Emu-rearing- Economical aspects-commercial products

Unit-4 Desi Chickens:

4.1 Indigenous breeds and economical aspects of desi chicken
4.2 Indigenous breeds-Aseel-Chittagong-Kadaknath-Bursa
4.3 Improved varieties in India – Giriraja-Vanaraja-Girirani-Kalinga brown, Gramapriya, Swarnandhra

Unit -5 Breeds from Central Avian Research Institute – Izatnagar

5.1 CARI Nirbheek - CARI- Shyama-HITCARI (Naked Neck Cross)
5.2 CARI- Priya Layer, CARI- Sonali Layer,
5.3 CARIBRO-VISHAL, CARI-RAINBRO,
5.4 Nandanam chicken-I, Nandanam Chicken-II, Nandanm-Quail III.

PVKN Govt. College(A), Chittoor

III B.Sc., SEMESTER – V: ZOOLOGY, PAPER – VI

TITLE OF THE PAPER: 6 C: POULTRY MANAGEMENT- I (POULTRY FARMING)

Subject Code: 22-ZOO-SE1 Credits: 03 Teaching Hrs/Week :03

BLUE PRINT FOR THE MODEL PAPER

S. No.	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
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	SECTION-B (Short answer questions)	8	5	40	5	5	25
2	SECTION-B (Essay type questions)	6	10	60	4	10	40
Total Marks				**110**	**Total Marks**		**75**

BLUE PRINT FOR THE QUESTION PAPER SETTING

Chapter Name	Very Short Questions 2 Marks	Short Questions 5 Marks	Essay Questions 10 Marks	Marks allotted to the Chapter
UNIT - I	1	2	2	32
UNIT - II	1	2	1	22
UNIT - III	1	2	1	22
UNIT - IV	1	1	1	17
UNIT - V	1	1	1	17
Total No. of Questions	**5**	**8**	**6**	**100**

PVKN Govt. College(A), Chittoor
III B.Sc., SEMESTER – V: ZOOLOGY, PAPER – VI
TITLE OF THE PAPER: 6 C: POULTRY MANAGEMENT- I (POULTRY FARMING)

Subject Code: 22-ZOO-SE1

QUESTION BANK

Very Short Answer Questions. 2marks

Unit-I
1. Genetic Utility
2. Importance of poultry
3. Classification of poultry

Unit-II
1. Mini breeds
2. Egg production
3. Leghorn

Unit-III
1. Ducks
2. Geese
3. Emu

Unit-IV
1. Bursa
2. Vanaraja
3. Chittagong

Unit-V
1. Priya layer
2. Vishal
3. Quail

Short Answer Questions. 5marks

Unit-I
1. Poultry Development in India
2. Importance of poultry
3. Feature prospectus of rpoulty industry

Unit-II
1. Meat production lines
2. Egg production lines
3. Mini breeds of chicken

Unit-III
1. Guinea verities
2. Emu rearing
3. Ducks and Gees Classification

Unit-IV
1. Desi chicken
2. Kadaknath
3. Kalinga brown
4. Kadaknath

Unit-V
1. CARI-Nirbheek
2. Sonali layer
3. Nandanam chicken

Essay Answer Questions. 10marks
Unit-I
1. Explain the Importance of poultry farming in india.
2. Write about the present statues poultry in india
3. Explain the classification of poultry
Unit-II
1. Explain the modern breeds of chicken
2. Write about present Egg production lines
3. Write about present meat production lines
Unit-III
1. Explain the Duck and Geese rearing system
2. Explain the Emu rearing
3. Write an essay on Guinea fouls
Unit-IV
1. Explain the Economical aspects of desi chicken
2. Write an essay Mini proved poultry verities in india
3. Write about any two indigenous poultries in india
Unit-V
1. Explain the Naked neck cross
2. Write an essay on Priya layer
3. Explain the difference between Vishal and Rainbro

PVKN Govt. College(A), Chittoor
III B.Sc., SEMESTER – V: ZOOLOGY, PAPER – VI
TITLE OF THE PAPER: 6 C: POULTRY MANAGEMENT- I (POULTRY FARMING)

Subject Code: 22-ZOO-SE1 Credits: 03 Teaching Hrs/Week :03

MODEL QUESTION PAPER

SECTION-A

(VERY SHORT ANSWER TYPE QUESTIONS)

I. Answer All the following questions.Each question carries TWO marks 2X5=10 M

1 Define poultry farming.

2 Modern breeds

3 Ducks

4 Giriraja

5 CARI- Sonali Layer

SECTION-B

(SHORT ANSWER TYPE QUESTIONS)

II Answer any FIVE of the following Questions. Daw a labelled diagram wherever necessary **5X5=25 M**

6 Describe the Present status of poultry Industry

7.Importance of poultry farming

8.Modern breeds of Chicken

9.Mini breeds

10. Economical Importance of emu.

11.Emu-rearing

12. Kadaknath-Bursa

13.Nandanam chicken

SECTION-C

(ESSAY ANSWER TYPE QUESTIONS)

I. Answer any **FOUR** of the following. Daw labelled diagram wherever necessary.
4**X10=40 M**

14. Write an essay on Classification of poultry based on genetics Utility .

15. Explain an Importance of poultry farming and poultry development in India

16. Mini breeds- dwarfism in mini-Leghorns

17. Describe the guinea fowl farming in India

18. Explain the economical aspects of desi chicken

19. Write an essay on naked neck cross chicken