KVR Govt. College for Women
(AUTONOMOUS)
Re-Accredited by NAAC with Grade "**A**"
KURNOOL

BOARD OF STUDIES MEETING

2021-2022

DEPARTMENT OF ZOOLOGY

25/01/2022 I B.Sc

Semester-I- ANIMAL DIVERSITY – BIOLOGY OF NONCHORDATES

Semester-II- ANIMAL DIVERSITY – BIOLOGY OF CHORDATES

Skill Development Course- DAIRY TECHNOLOGY

KVR Govt. College for Women
(AUTONOMOUS)
Re-Accredited by NAAC with Grade "**A**"
KURNOOL

Kurnool
Board of Studies Meeting
DEPARTMENT OF ZOOLOGY
(w.e.f. 2021-22)

Minutes of Board Of Studies meeting held in the department of Zoology, KVR Govt. College for Women (A), Kurnool 25-01-2022, 11.30 AM and resolved the following:

CONSTITUTION OF THE BOARD OF STUDIES

S.No.	Name & Designation	Acted as
1.	Dr.T.Lavanya Incharge of Dept. of Zoology, KVR Govt. College for Women(A), Kurnool	Chairman
2.	Prof.V.Loknatha, Professer in Zoology DravidianUniversity,Chittor.	University Nominee
3.	Dr.P.Shajahan Begum Lecturer in Zoology, SJGDC,Kurnool	Subject Expert
4.	Dr.Y.Savitri Lecturer in Zoology, Govt Degree College for Men(A), Kadapa	Subject Expert
5.	Dr.K.Jayappa, Lecturer in Zoology, Govt Degree College, Penugonda..	Subject Expert
6.	Smt. Syamala Joint Director (FAC)	Industrialist

	Inland Fisheries Kurnool	
7.	Dr.S.Shamshad Lecturer in Zoology, KVR Govt. College for Women(A), Kurnool	Member
8.	Smt.J.Hema Latha Lecturer in Zoology, KVR Govt. College for Women (A), Kurnool.	Member
9.	Dr.G.Seethamma , Lecturer in Zoology, KVR Govt. College for Women(A), Kurnool	Member
10.	Smt.B.Sujatha Lecturer in Zoology, KVR Govt. College for Women(A), Kurnool	Member
11.	K.Tulasi	Alumni
12.	K.Surna Latha, III BZC(E.M), KVR Govt. College for Women(A), Kurnool	Representative from students
13.	B. Divya , III BZC(T.M), KVR Govt. College for Women(A), Kurnool	Representative from students

II Term: The term of the nominated members in 2 academic years i.e, 2021-2022 &2022-2023.

III Functions:

a) Prepare syllabi for various courses keeping in view of the objectives of the college, interest of stake holders and national requirement for consideration and approval of the academic council.
b) Suggest methodologies for innovative and evaluation techniques.
c) Suggest panel of names to the academic council for the appointment of paper setters and examiners.
d) Co-ordinate research, teaching, extension and other academic activities in the departments and college.

IV Meeting:

Sir,

It is a pleasure to request and invite you to the meeting of B.O.S. of ZOOLOGY department for the academic year 2021-2022 which is scheduled to be held on **25-01-2022** at 11 .30 am in K.V.R.G.C.W (AUTOMONOUS) Kurnool.

We request you to attend the BOS meet online due to Covid pandemic and contribute experience to prepare ideal syllabi.

CHAIRMAN

Yours faithfully

PRINCIPAL

RESOLUTIONS

The committee members of BOS in Zoology met on **25-01-2022** at 11-30 A.M in the department of Zoology ,KVR Govt. Degree College for Women(A), Kurnool (Online) under the chairmanship of **Dr.T.Lavanya** I/C of the department of Zoology, discussed the proposals on the curriculum for the I year UG course and developed the following resolutions after thorough discussions..

The following resolutions are made and passed unanimously.

1. Resolved to approve the revised syllabus in Zoology for I year B.Sc., Semester-I- Animal diversity – Biology of non chordates and Semester-II- Biology of chordates and Skill development Course as decided by the expert members and members of the Board of Studies (UG) Zoology.

2. The revised syllabus will come into effect from the academic year **2021-2022** for I B.Sc. Semester-I and Semester-II.

3. Resolved to conduct the practical examinations at the end of Semester-I and Semester-II for I B.Sc. students for 50 marks in each paper.

4. Semester-I, II Each paper carries 60 Marks.

5. Internal Assessment Examination will be for 20 Marks. There will be two Internal Assessment Examinations in each semester. (Average of two to be taken).

6. Seminar, Attendance, extracurricular activities, are given the weightage of 5 Marks each. MOOCS is given the weightage of 5 Marks. Total Internal Assessment Marks =40.

7. Resolved to approve the syllabus (Theory Paper –I and II) for the academic year **2021-2022** as prescribed in the Proforma **Annexure -I & II.**

8. Resolved to approve the list of practicals for Practical – Paper –I and II for the academic year **2021-2022** as prescribed in the proforma **Annexure - III**.

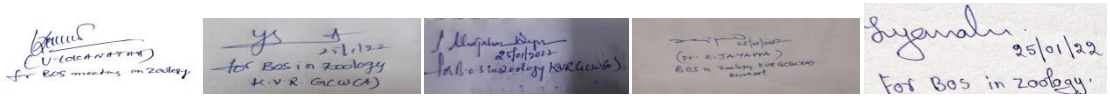
9. Practical scheme of valuation for Practical – Paper –I and II for the academic year **2021-2022** as prescribed in the proforma in **Annexure-IV.**

10. Resolved to approve the Model Papers for I-B.Sc. Semester- I and Semester- II for the academic year 2021-22 as prescribed in the proformas per **Annexure-V** and **Annexure VI.**

11. Justification report for the syllabus Paper- I and II for the academic year 2021-22 as prescribed in the Proforma in **Annexure VII.**

12. Resolved to recommend the panel of examiners and paper setters as in **Annexure –VIII** from the academic year **2021-2022**

13. Resolved to approve the syllabus of Skill development course course on Dairy technology as in **Annexure –IX** and model question paper for **Annexure –X** for second year students**.**



KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
(w. e. f. 2021-2022)

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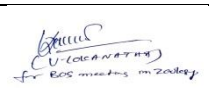
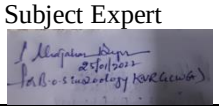
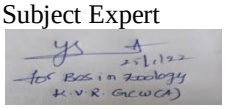
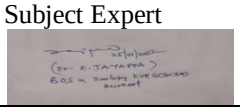
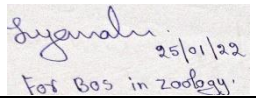
CONSTITUTION OF THE BOARD OF STUDIES OF ZOOLOGY ON 21-01-2022

S.No.	Name & Designation	Acted as
1.	Dr.T.Lavanya Incharge of Dept. of Zoology, KVR Govt. College for Women(A), Kurnool	Chairman
2.	Prof.V.Loknatha, Professer in Zoology DravidianUniversity,Chittor.	 University Nominee
3.	Dr.P.Shajahan Begum Lecturer in Zoology, SJGDC,Kurnool	Subject Expert 
4.	Dr.Y.Savitri Lecturer in Zoology, Govt Degree College for Men(A), Kadapa	Subject Expert 
5.	Dr.K.Jayappa, Lecturer in Zoology, Govt Degree College, Penugonda..	Subject Expert 
6.	Smt. Syamala Joint Director (FAC) Inland Fisheries Kurnool	Industrialist 
7.	Dr.S.Shamshad Lecturer in Zoology, KVR Govt. College for Women(A), Kurnool	Member
8.	Smt.J.Hema Latha Lecturer in Zoology, KVR Govt. College for Women (A), Kurnool.	Member
9.	Dr.G.Seethamma , Lecturer in Zoology, KVR Govt. College for Women(A), Kurnool	Member
10.	Smt.B.Sujatha Lecturer in Zoology, KVR Govt. College for Women(A), Kurnool	Member
11.	K.Tulasi	Alumni
12.	K.Surna Latha, III BZC(E.M), KVR Govt. College for Women(A), Kurnool	Representative from students
13.	B. Divya , III BZC(T.M), KVR Govt. College for Women(A), Kurnool	Representative from students

ZOOLOGY BLUE PRINT FOR QUESTION PAPERS

(THEORY QUESTION PAPERS-III Year)

S.NO	Type of Questions	No.of Questions given	No.of Questions To be answered	Marks allotted to each question	Total Marks
1	PART-A: Short Answer Questions	08	5	04	20
2	PART-B: Long Answer Questions	10	5	08	40
				TOTAL	60

Design & Blue Print

1. Distribution of marks as per learning objectives

S.NO	Learning Objective	%	Marks
1	Knowledge/Recall	30%	25
2	Understanding	30%	15
3	Application	20%	10
4	Skill	20%	10

2. Distribution as per question type

S.NO	Question Type	%	Marks		
1	Short Answer Questions	30%	20		
2	Long Answer Questions	70%	40		

3. Distribution of marks as per difficulty level

Easy	Average	Difficult	Total
15	30	15	60

OLD SYLLABUS OF 2020-21

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
DEPARTMENT OF ZOOLOGY

FIRST YEAR - FIRST SEMESTER SYLLABUS (w. e. f. 2020-2021)
PAPER – I: ANIMAL DIVERSITY – BIOLOGY OF NONCHORDATES

HOURS:60 (5X12) **Max. Marks: 100**

UNIT I

1.1 Principles 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 (type study)*

UNIT –II

PhylumPorifera

2.1 General characters and classification up to classes with suitable examples

2.2 Skelton in Sponges

2.3 Canal system in sponges

Phylum Coelenterata

2.4 General characters and classification up to classes with suitable examples

2.5 Metagenesis in *Obelia*

2.6 Polymorphism in coelenterates

2.7 Corals and coral reefs

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 Life cycle and pathogenecity of *Fasciola hepatica*

3.3 Parasitic Adaptations in helminthes

Phylum Nemathelminthes

3.4 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

4.4 General characters and classification up to classes with suitable examples

4.5 Vision and respiration in Arthropoda

4.6 Metamorphosis in Insects

4.7 *Peripatus* - Structure and affinities

4.8 Social Life in Bees and Termites

Unit – V

Phylum Mollusca

5.1 General characters and classification up to classes with suitable examples

5.2 Pearl formation in Pelecypoda

5.3 Sense organs in Mollusca

Phylum Echinodermata

5.4 General 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 examples

5.8 *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"

ZOOLOGY PRACTICAL SYLLABUS FOR I SEMESTER
ZOOLOGY - PAPER - I
ANIMAL DIVERSITY - BIOLOGY OF NONCHORDATES

Periods: 24 **Max. Marks: 50**

Syllabus :

1. Study of museum slides / specimens / models (Classification of animals up to orders)

Protozoa: Amoeba, *Paramoecium, Paramoecium Binary fission and Conjugation, Vorticella, Entamoebahistolytica, Plasmodium vivax*

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

Coelenterata: *Obelia – Colony & Medusa, Aurelia, Physalia, Velella, Corallium, Gorgonia, Pennatula*v.

Platyhelminthes: *Planaria, Fasciola hepatica, Fasciola*larval forms – Miracidium, Redia, Cercaria, *Echinococcusgranulosus, Taeniasolium, Schistosomahaematobium*vii.

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 larva

Echinodermata: *Asterias, Ophiothrix, Echinus, Clypeaster, Cucumaria, Antedon,* Bipinnaria larva

Hemichordata: *Balanoglossus,* Tornaria larva

2. Dissections:

1. Prawn: Appendages, Digestive system, Nervous system, Mounting of Statocyst

2. Insect Mouth Parts

3. Laboratory Record work shall be submitted at the time of practical examination

4. An **"Animal album**" containing photographs, cut outs, with appropriate write up about the above mentioned taxa. Different taxa/ topics may be given to different sets of students for this purpose

5. Computer - aided techniques should be adopted or show virtual dissections

RFERENCEMANUALS:

1. Practical Zoology- Invertebrates S.S. Lal
2. Practical Zoology - Invertebrates P.S. Verma
3. Practical Zoology - Invertebrates K.P. Kurl
4. Ruppert and Barnes (2006) Invertebrate Zoology, 8th Edition, Holt Saunders International Edition

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
DEPARTMENT OF ZOOLOGY

FIRST YEAR – SECOND SEMESTER SYLLABUS (w. e. f. 2020-2021)
PAPER – II: ANIMAL DIVERSITY – BIOLOGY OF CHORDATES

HOURS: 60 (5X12) **Max. Marks: 100**

Unit - I

1.1 General characters and classification of Chordata upto classes

1.2 Protochordata- Salient features of Cephalochordata , Affinities of Cephalochordata.

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 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 Classification of Amphibiaup to orders with examples.

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

3.4 Reptilia: General characters of Reptilia, Classification of Reptilia upto orders with examples

3.5 *Calotes*:External features, Digestive system, Respiratory system, Structure and function of Heart, structure and function of Brain

3.6. Identification of 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, Structure and function of Heart, structure and function of Brain

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

 J.Z. Young, 2006. The life of vertebrates. (The Oxford University Press, New Delhi). 646 pages. Reprinted

 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).

 P.S. Dhami& J.K. Dhami, 1981. Chordate zoology. (R. Chand & Co.). 550 pages.

 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.

OR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
(w. e. f. 2020-2021)

ZOOLOGY PRACTICAL SYLLABUS FOR II SEMESTER

ZOOLOGY - PAPER - II

ANIMAL DIVERSITY - BIOLOGY OF CHORDATES

Periods: 24 **Max. Marks: 50**

OBSERVATION OF THE FOLLOWING SLIDES / SPOTTERS / MODELS

1. Protochordata :*Herdmania, Amphioxus, Amphioxus* T.S through pharynx.
2. Cyclostomata :*Petromyzon and Myxine.*
3. Pisces : *Pristis, Torpedo, Hippocoampus ,Exocoetus, Echeneis, Labeo, Catla, Clarius,Channa, Anguilla*.
4. Amphibia :*Ichthyophis, Amblystoma, Axolotl larva, Hyla,*
5. Reptilia: *Draco, Chamaeleon, Uromastix,,Testudo, Trionyx, Russels viper, Naja,* Krait, *Hydrophis, Crocodile.*
6. Aves : *Psittacula, Eudynamis, Bubo, Alcedo.*
7. Mammalia: *Ornithorhynchus,Pteropus,Funambulus.*

Dissections-

1. *Scoliodon*IX and X, Cranial nerves
2. *Scoliodon*Brain
3. Mounting of fish scales

Note: 1. Dissections are to be demonstrated only by the faculty or virtual.
2.Laboratory Record work shall be submitted at the time of practical examination.

REFERENCE BOOKS:

1. S.S.Lal, Practical Zoology – Vertebrata
2. P.S.Verma, A manual of Practical Zoology – Chordata

MODIFIED SYLLABUS 2022-2023

Annexure -I

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
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DEPARTMENT OF ZOOLOGY

FIRST YEAR - FIRST SEMESTER SYLLABUS (w. e. f. 2021-2022)
PAPER – I: ANIMAL DIVERSITY – BIOLOGY OF NONCHORDATES

HOURS: 60 (5X12) **Max. Marks: 100**

UNIT I

1.1 Principles 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 (type study)*

UNIT –II

Phylum Porifera

2.1 General characters and classification up to classes with suitable examples

2.2 Skelton in Sponges

2.3 Canal system in sponges

Phylum Coelenterata

2.4 General characters and classification up to classes with suitable examples

2.5 Polymorphism in coelenterates

2.6 Corals and coral reefs

Phylum Ctenophora :

2.7 General Characters and Evolutionary significance

Unit – III

Phylum Platyhelminthes

3.1 General characters and classification up to classes with suitable examples

3.2 Life cycle and pathogenicity of *Fasciola hepatica*

Phylum Nemathelminthes

3.3 General characters and classification up to classes with suitable examples

3.4. Life cycle and pathogenicity of *Ascaris lumbricoides*

Unit – IV

Phylum Annelida

4.1 General characters and classification up to classes with suitable examples

4.2 Types of Coelom and Coelom ducts

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

Phylum Arthropoda

4.4 General characters and classification up to classes with suitable examples

4.5 Metamorphosis in Insects

4.6 Social Life in Bees and Termites *Peripatus* - Structure and affinities

4.7 *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

5.3 Larval forms of Mollusca

Phylum Echinodermata

5.4 General 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

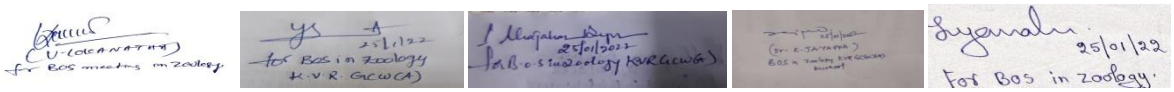
5.7 General characters and classification up to classes with suitable examples

5.8 *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"



Annexure -II

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
DEPARTMENT OF ZOOLOGY

FIRST YEAR –SECOND SEMESTER SYLLABUS (w. e. f. 2021-2022)
PAPER – II: ANIMAL DIVERSITY – BIOLOGY OF CHORDATES

HOURS: 60 (5X12) **Max. Marks: 100**

Unit - I

1.1 General characters and classification of Chordata upto classes

1.2 Protochordata- Salient features of Cephalochordata, Affinities of Cephalochordata.

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 of Fishes

2.3 *Scoliodon*: External features, Digestive system, ,Structure and function of Heart

2.4 Migration in Fishes

2.5 Types of Scales

2.6 Dipnoi

Unit - III

3.1 General characters of Amphibiaand Classification of Amphibiaup to orders with examples.

3. 2*Ranahexadactyla*: External features, Digestive system, Respiratory system, Structure and function of Heart, structure and functions of the Brain

3.3 Reptilia: General characters of Reptilia, Classification of Reptilia up to orders with examples

3.4*Calotes*:External features, Digestive system

3.5. Identification of Poisonous and non Poisonous snakes

Unit - IV

4.1 Aves General characters of Aves

4.2 *Columba livia*: External features, Digestive system, Respiratory system, Structure and function of Heart, structure and function of Brain

4.3 Migration in Birds

4.4 Flight adaptation in birds

Unit - V

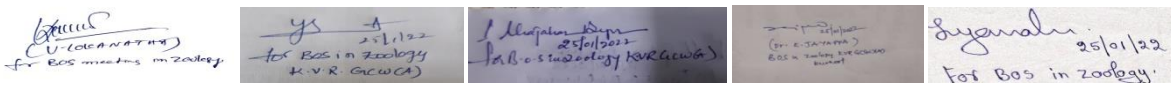
5.1 General characters of Mammaliaand Classification of Mammalia upto sub - classes with examples

5. Comparision of Prototherians, Metatherians and Eutherians

5.4 Dentition in mammals

REFERENCE BOOKS

1. J.Z. Young, 2006. The life of vertebrates. (The Oxford University Press, New Delhi). 646 pages. Reprinted
2. Arumugam, N. Chordate Zoology, Vol. 2. SarasPlublication. 278 pages. 200 figs.
3. A.J. Marshall, 1995. Textbook of zoology, Vertebrates. (The McMillan Press Ltd., UK). 852 pages. (Revised edition of Parker &Haswell, 1961).
4. M. EkambaranathaAyyar, 1973. A manual of zoology. Part II. (S. ViswanathanPvt. Ltd., Madras).
5. P.S. Dhami& J.K. Dhami, 1981. Chordate zoology. (R. Chand & Co.). 550 pages.
6. Gurdarshan Singh & H. Bhaskar, 2002. Advanced Chordate Zoology. Campus Books, 6 Vols., 1573 pp., tables, figs.
7. A.K. Sinha, S. Adhikari& B.B. Ganguly, 1978. Biology of animals. Vol. II. Chordates. (New Central Book Agency, Calcutta). 560 pages.
8. R.L.Kotpal, 2000. Modern textbook of zoology, Vertebrates. (Rastogi Publ., Meerut). 632 pages.
9. E.L. Jordan & P.S. Verma, 1998. Chordate zoology. (S. Chand & Co.). 1092 pages.
10. G.S. Sandhu, 2005. Objective Chordate Zoology. Campus Books, vii, 169 pp.
11. Sandhu, G.S. & H. Bhaskar, H. 2004. Textbook of Chordate Zoology. Campus Books, 2 vols., xx, 964 p., figs.
12. Veena, 2008. Lower Chordata. (Sonali Publ.), 374 p., tables, 117 figs.



Annexure -III

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
ZOOLOGY PRACTICAL SYLLABUS FOR I SEMESTER (w. e. f. 2021-2022)
ZOOLOGY - PAPER - I
ANIMAL DIVERSITY - BIOLOGY OF NONCHORDATES

Periods: 24 Max. Marks: 50

Syllabus :

1. Study of museum slides / specimens / models (Classification of animals up to orders)

Protozoa: Amoeba*, Paramoecium, Paramoecium Binary fission and Conjugation, Vorticella, Entamoebahistolytica, Plasmodium vivax*

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

Coelenterata: *Obelia – Colony & Medusa, Aurelia, Physalia, Velella, Corallium, Gorgonia, Pennatula*v.

Platyhelminthes: *Planaria, Fasciola hepatica, Fasciola*larval forms – Miracidium, Redia, Cercaria, *Echinococcusgranulosus, Taeniasolium, Schistosomahaematobium*vii.

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 larva

Echinodermata: *Asterias, Ophiothrix, Echinus, Clypeaster, Cucumaria, Antedon,* Bipinnaria larva

Hemichordata: *Balanoglossus,* Tornaria larva

2. Dissections:

1. Prawn: Appendages, Digestive system, Nervous system, Mounting of Statocyst

2. Insect Mouth Parts

3. Laboratory Record work shall be submitted at the time of practical e amination

4. An **"Animal album**" containing photographs, cut outs, with appropriate write up about the above mentioned taxa. Different taxa/ topics may be given to different sets of students for this purpose

5. Computer - aided techniques should be adopted or show virtual dissections

RFERENCEMANUALS:

1. Practical Zoology- Invertebrates S.S. Lal
2. Practical Zoology - Invertebrates P.S. Verma
3. Practical Zoology - Invertebrates K.P. Kurl

4. Ruppert and Barnes (2006) Invertebrate Zoology,8th Edition, Holt Saunders International Edition.

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
DEPARTMENT OF ZOOLOGY

ZOOLOGY PRACTICAL SYLLABUS FOR II SEMESTER (w. e. f. 2021-2022)
ZOOLOGY - PAPER – II

ANIMAL DIVERSITY - BIOLOGY OF CHORDATES
Periods: 24 Max. Marks: 50
OBSERVATION OF THE FOLLOWING SLIDES / SPOTTERS / MODELS

1. Protochordata :*Herdmania, Amphioxus, Amphioxus* T.S through pharynx.
2. Cyclostomata :*Petromyzon and Myxine.*
3. Pisces :*Pristis, Torpedo, Hippocoampus ,Exocoetus, Echeneis, Labeo, Catla, Clarius,Channa, Anguilla*.
4. Amphibia :*Ichthyophis, Amblystoma, Axolotl larva, Hyla,*
5. Reptilia: *Draco, Chamaeleon, Uromastix,,Testudo, Trionyx, Russels viper, Naja,* Krait, *Hydrophis, Crocodile.*
6. Aves :*Psittacula, Eudynamis, Bubo, Alcedo.*
7. Mammalia: *Ornithorhynchus,Pteropus,Funambulus.*

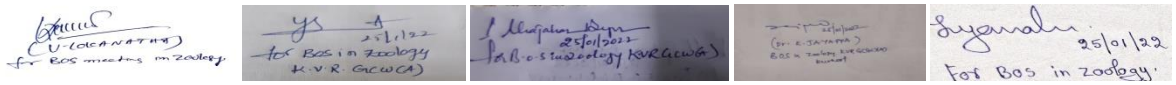
Dissections-

1. *Scoliodon*IX and X, Cranial nerves
2. *Scoliodon* Brain
3. Mounting of fish scales
4. **Frog digestive system**

Note: 1. Dissections are to be demonstrated only by the faculty or virtual.
2.Laboratory Record work shall be submitted at the time of practical examination.

REFERENCE BOOKS:

1. S.S.Lal, Practical Zoology – Vertebrata
2. P.S.Verma, A manual of Practical Zoology – Chordata



ANNEXURE - IV

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
FIRST YEAR ZOOLOGY
(w.e.f. 2021-2022)

PRACTICAL PAPER – I
Model Paper for Semester I

ANIMAL DIVERSITY _BIOLOGY OF NON-CHORDATES

l. Observation of the following slides / specimens / models:

Protozoa - Elphidium

Porifera - Spongilla,

Coelenterata - Physalia, , Gorgonia,

Platyhelminthes and Nemathelminthes - Planaria,Larval stages of Fasciola-Miracidium,Redia, Cercaria,

Annelida - Nereis, Hirudo, Trochophore larva.

Arthropoda -, Peripatus.

Mollusca - Unio, Sepia, Octopus Glochidium larva.

Echinodermata - Asterias, Ophiothrix, Bipinnaria larva.

Hemichordata - Balanoglossus,Tornaria larva.

Virtual Dissections:

1. Nervous system of Prawn
2. Appendages of Prawn

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
FIRST YEAR ZOOLOGY
(w.e.f. 2021-2022)

PRACTICAL PAPER – II

ANIMAL DIVERSITY –BIOLOGY OF CHORDATES

Model Paper for Semester II

Time : 3 hours **Max .Marks: 50**

I) Labelled diagram of vertebrate virtual dissection/dissected animal 20 marks

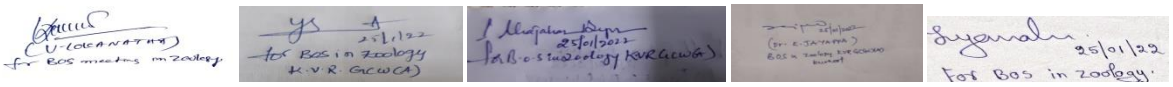
II) invertebrates/vertebrates, larval forms l0 marks

III) Spotters Invertebrate / vertebrate 5 X 2:10marks.

[One Invertebrate Slide one vertebrate slide ,two osteology models ,Two Specimens of vertebrate]

IV) Certified Record 10 Marks

Total Marks 50



Annexure -V
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
(w. e. f. 2021-2022)
ZOOLOGY - PAPER - I
ANIMAL DIVERSITY – BIOLOGY OF NONCHORDATES
Third Year Degree – I Semester End Examination
Model Paper

Max. Time: 3hrs **Max. Marks:60**

PART-A

I. Answer any FIVE of the following : **5x4=20**

Draw labelled diagrams wherever necessary

1. Describe the structure of Elphidium.
2. Write short notes on Amphiblastula larva.
3. Give an account of coral reefs.
4. Explain the coelom and coelomoducts in Annelida
5. Give an account of the general characters of Hemichordata
6. Write about sense organs in Mollusca.
7. Peripatus
8. Balanoglossus structure.

PART- B

II. Answer any FIVE of the following: **5x8=40**

Draw labelled diagrams wherever necessary

9 .a. Write about Locomotion and reproduction in Protozoans?

(or)

b. Describe the Life cycle of Elphidium?

10. a. Describe the various types of canal systems in sponges?

(or)

b. Polymorphism in coelenterates-explain with suitable examples?

11. a. Describe the Life cycle and pathogenecity of *Fasciola hepatica?*

(or)

b. Describe the Life cycle and pathogenecity of *Ascarislumbricoides?*

12. a. Describe the structure and affinities of peripatus?

(or)

b. Explain the processing, and economic importance of vermicompost?

I 3.a. Explain the water vascular system in Star fish?

(or)

b. Give an account of larval forms in Mollusca?

Annexure -VI
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
(w. e. f. 2021-2022)
ZOOLOGY MODEL PAPER FOR II SEMESTER
ZOOLOGY - PAPER - II
ANIMAL DIVERSITY – BIOLOGY OF CHORDATES
Model Paper

Max. Time: 3hrs **Max. Marks:60**

PART-A

Time: 3 hrs **Max. Marks: 60**

I. Answer any FIVE of the following: **5x4=20**

Draw labeled diagrams wherever necessary

1. *Amphioxus*
2. Placoid scale
3. Quill feather
4. Prototheria
5. Anadromous migration
6. *Draco*
7. Emu
8. Apoda

II. Answer any FIVE of the following: **5x8=40**

Draw labeled diagrams wherever necessary

9. Explain the life history of Herdmania

OR

Explain the origin and general characters of chordates

10. Compare the characters of *Petromyzon* and *Myxine*

OR

Describe the structure of heart of *Scoliodon*

11. Describe the brain of *Ranahexadactyla*

OR

Explain the external features of *Calotes*

12. Write an essay on flight adaptations in birds

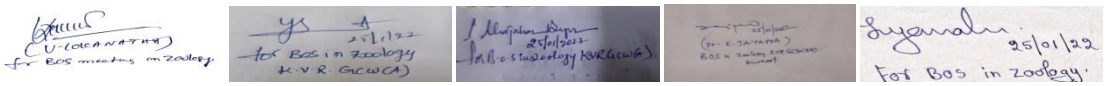
OR

Explain the respiratory system of *Columba livia*

13. Compare the characters of Metatheria and Eutheria

OR

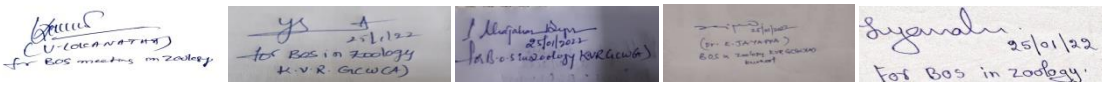
Write an essay on dentition in mammals



ANNEXURE - VII
JUSTIFICATION REPORT

Semester/ Paper/ Title of the Paper	Major Additions/Deletions	Justification
Sem-I/ Paper -I ANIMAL DIVERSITY – BIOLOGY OF NONCHORDATES	Metagenesis in *Obelia* was deleted	This topic was studied in Intermediate level by the students
		To provide basic Knowledge on Animal cell culture laboratory.
	Parasitic Adaptations in helminthes	As syllabus is being lengthy for semester pattern, for the convenience of students it was deleted
	Evolution of Coelom and Coelom ducts topic was changed to Types of Coelom	To provide basic knowledge about Coelom
	Vision and respiration in Arthropoda was deleted	As syllabus is being lengthy for semester pattern, for the convenience of students it was deleted
	Sense organs in Mollusca was deleted and Larval forms of Mollusca was included	Larval forms of Mollusca is important for any competitive exams. For the sake of students it was included
Sem – II/ Paper -II ANIMAL DIVERSITY - BIOLOGY OF CHORDATES	Scoliodon Respiratory system, Structure and functions of the Brain were deleted.	As syllabus is being lengthy for semester pattern, for the convenience of students it was deleted .
	Calotes Respiratory system, Structure and function of Heart, structure and function of Brain	As syllabus is being lengthy for semester pattern, for the convenience of students it was deleted

	Skull in reptiles	Skull in reptiles was already covered in general characters of reptiles. So this topic was deleted.

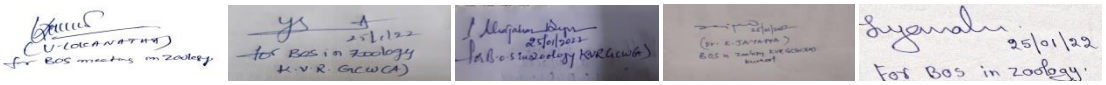


ZOOLOGY PRACTICAL SYLLABUS FOR I SEMESTER:

Zoology Practical syllabus for I semester no changes were done.

ZOOLOGY PRACTICAL SYLLABUS FOR II SEMESTER:

Frog digestive system was added



ANNEXURE - VIII
KVR GDC (W), KURNOOL COLLEGE KURNOOL ,A.P
(AUTONOMOUS)
NAAC RE-ACREDITED 'A' GRADE
DEPARTMENT OF ZOOLOGY

PANEL OF EXAMINERS FOR PAPER SETTING /VALUATION/PRACTICAL EXAMINATION

1.**Dr.K.Jayappa** Lecturer in Zoology Govt. Degree College Penukonda Contact No:9492631319	6 . **Dr.P.Ravi Shekar** Lecturer In Zoology, Govt. Arts College Kadapa Contact No. 9441689606
2. **Dr.G.Srinivas,** Head Of the Department Of Zoology Silver jublee Govt. College(A).Kurnool	7.**Dr Dhanunjaya** Lecturer in Zoology Govt. Arts college Ananthapur
3.P.V. Viswaprasad Lecturer in Zoology, Govt Degree College, Rayachoty, Kadapa.(Dist) Contact No.9502374642	8.**Dr.Y.Savithri** Lecturer In Zoology, Govt. Arts College Kadapa Contact No. 8688560177
4..**Dr P.Sachi Devi** Lecturer in Zoology Govt. Arts College Kadapa Contact No. 9703436861	**Dr. K.V. Chamundeswaramma** Lecturer in Zoology Govt. College (A), Anantapur. Contact No. 9492827113
5.**Dr P.Shajahan Begum** Lecturer in Zoology Silver jublee Govt. College(A).Kurnool Kurnool. Contact No. 7981299564	**Dr. G. Raja Sekhar** Lecturer in Zoology Govt. College (A), Anantapur. Contact No. 8985092021

11. **Dr. G. Gurumurthy** Lecturer in Zoology Govt. Degree College Valmikipuram, Chittor (Dt) Contact No. 9441653005	**Dr. N. Chandramohan** Lecturer in Zoology, Govt. Degree College, Rajampet, Kadapa (Dt) Contact No. 9441652240
12. **Dr. K. Sivaprasad** Lecturer in Zoology Govt. Degree College Gudur, Nellore (Dt) Contact No. 9676841978	**P. Sabitha** Lecturer in Zoology Govt. Degree College Porumamilla, Kadapa (Dt). Contact No.9550063472
13.Dr. M. Gurusekhar Lecturer in Zoology Govt. Degree College Kambam, Prakasham (Dt) Contact No. 9491311355	**P.V. Viswaprasad** Lecturer in Zoology, Govt Degree College, Rayachoty, Kadapa.(Dist) Contact No.9502374642
14.Dr. P. Giridhar Lecturer in Zoology Govt. College (A) Anantapur Contact No. 9491361743	19. **Dr. N. Srinivas** Lecturer in Zoology PR Govt. College (Autonomous) Kakinada - 9912760880
15. **G.L.N. Prasad**, Lecturer in Zoology, Govt. Degree College Kalyanadurg Anantapur Dt.. 9441450987	20. **Dr.D. Aruna Kumari** Lecturer in Zoology, Govt. College (A), Anantapur. Contact No. 7013817848

Annexure –IX.
KVR GOVT COLLEGE (W), KURNOOL (Autonomous)
NACC RE- ACCREDATED 'A' GRADE
DEPARTMENT OF ZOOLOGY (w.e.f. 2021-2022)

SKILL DEVELOPMENT COURSE – DAIRY TECHNOLOGY

Total Hours-30 **Max Marks -50**

Unit –I

1.1 Dairy development in India – Dairy Cooperatives (NDRI, NDDB, TCMPF)

1.2 Constraints of Present Dairy Farming and Future Scope of Dairy Farmer

1.3 Selection of site for dairy farm; Systems of housing – Loose housing system,Conventional Dairy Farm; Records to be maintained in a dairy farm.

Unit –II

2.1 Breeds of Dairy Cattle and Buffaloes – Identification of Indian cattle and buffalo breedsand Exotic breeds; Methods of selection of Dairy animals.

2.2 Systems of inbreeding and crossbreeding.

2.3 Weaning of calf, Castration, Dehorning, Deworming and Vaccination programme

2.4Care and management of calf, heifer, milk animal, dry and pregnant animal, bulls and bullocks.

Unit –III

3.1 Basic Principles of Feed, Important Feed Ingredients, Feed formulation and Feed Mixing

3.2 Operation Flood –Definition of Milk and Nutritive value of milk and ICMR recommendation of nutrients –Per Capita Milk production and availability in India and Andhra Pradesh -Methods of Collection and Storage of Milk–Labelling and Storage of milk products

3.3 Cleaning and sanitation of dairy farm – Safety precautions to prevent accidents in an industry.

Reference books:

1. Dairy Science: Petersen (W.E.) Publisher – Lippincott & Company
2. Principles and practices of Dairy Farm –Jagdish Prasad
3. Text book of Animal Husbandry - G C Benarjee

4. Hand book of Animal Husbandry - ICAR Edition
5. Outlines of Dairy Technology – Sukumar (De) – Oxford University press
6. Indian Dairy Products – Rangappa (K.S.) & Acharya (KT) – Asia Publishing House.
7. The technology of milk Proceesing – Ananthakrishnan, C.P., Khan, A.Q. andPadmanabhan, P.N. – Shri Lakshmi Publications.
8. Dairy India 2007, Sixth edititon
9. Economics of Milk Production – Bharati Pratima Acharya Publishers.

Annexure –X.

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
MODEL PAPER FOR II SEMESTER
DAIRY TECHNOLOGY (w.e.f.2021-22)

Time : 3 hours **Max.Marks : 50M**

PART -A

I. Answer any FIVE of the following: **5x4=20M**

1. Write about conventional dairy farming?
2. Write about the role of NDRI in Dairy Development in India
3. Write in detail about HEIFER
4. Write a note on exotic breeders in India
5. Enumerate about important feed ingredients
6. Write short notes on methods of collection and storage of milk
7. Write short notes on records to be maintained in a dairy farm?
8. Write in detail about vaccination programme in dairy farm?

PART -B

II. . Answer any three of the following: **3x10=30M**

1. A.) Write an essay on constrains of present dairy farming and future scope of dairy farmer?

OR

B.) Write an essay on selection of site for dairy farming?

2. A.) Write an essay on systems of inbreeding and cross breeding?

OR

B.) Enumerate about care and management of bulls and bullocks?

3. A.) Write an essay on cleaning and sanitation of dairy farm?

OR

B.) Write an essay on feed formulation and feed mixing?