

**SRR & CVR GOVERNMENT DEGREE COLLEGE
(AUTONOMOUS)
VIJAYAWADA**

DEPARTMENT OF ZOOLOGY



**MINUTES OF THE MEETING
UP GRADATION OF SYLLABUS MEETING
(2019-20)**

DATED : 29/06/2019

**Course: B.Sc (AT.Z.C)
EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY**

**Subject: ZOOLOGY & AQUACULTURE TECHNOLOGY
SEMESTER-I**

SYLLABUS, BLUE PRINT & MODEL QUESTION PAPERS

(AS PER CBCS AND SEMESTER SYSTEM)

(W.E.F.2019-20)



SRR & CVR GOVT. DEGREE COLLEGE

(Autonomous)

NAAC accredited with 'B+' Grade

Machavaram, Vijayawada – 520 004, Krishna District.

Cell: 94922 34488 Ph: 0866-2430060 Fax: 0866-2441092 www.srrcvr.org srrandcvr@gmail.com



Dr. Velaga Joshi, Principal

M.A. (Phil.), M.A. (His), M.A. (M.C.J.), B.L., M.Phil., Ph.D.

MINUTES OF THE MEETING UPGRADATION OF SYLLABUS ZOOLOGY

A meeting on upgradation of syllabus in the subject of **ZOOLOGY** was held on **29th June 2019** in Room No: **Zoology Department**, for Subject-Zoology and Aquaculture Technology syllabus, Semester-I in I. B.Sc (AT.Z.C) in the Course-**Embedded Course in Aquaculture Technology** under the chairmanship of Dr. M. Vijaya Kumar, Head of the Zoology Department. **The following members attended the meeting:**

- 1. Dr. M.VIJAYA KUMAR** (In-charge of the Department & Chairman, BoS)
Lecturer in Zoology
SRR & CVR GDC (A) Vijayawada
- 2. Dr.K.VEERAAIAH** (University Nominee)
Professor
Department of Zoology & Aquaculture
Acharya Nagarjuna University. Guntur.AP
- 3. Dr.CH.TULASI MASTANAMMA** (Subject Expert)
Lecturer in Zoology
Govt. Degree College for Women (A)
Guntur
- 4. Dr.N.SREENIVAS** (Subject Expert)
Lecturer in Zoology
PR Govt.(A) College
Kakinada.AP
- 5. Sri.A.RAGHURAM REDDY** (Special Member)
Neelagri Foundation
Atmakur,Guntur
- 6. G.VANI** (Faculty Member)
Lecturer in Zoology
SRR & CVR GDC (A), Vijayawada
- 7. K. DURGA RAO** (Faculty Member)
Lecturer in Zoology
SRR & CVR GDC (A), Vijayawada
- 8. Sk.Parveen** (Faculty Member)
Lecturer in Zoology
SRR & CVR GDC (A), Vijayawada



SRR & CVR GOVT. DEGREE COLLEGE

(Autonomous)

NAAC accredited with 'B' Grade

Machavaram, Vijayawada – 520 004, Krishna District.

Cell: 94922 34488 Ph: 0866-2430060 Fax: 0866-2441092 www.srrcvr.org srrandcvr@gmail.com

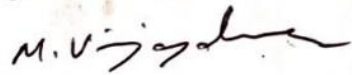
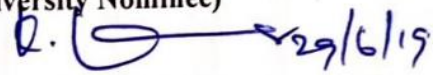

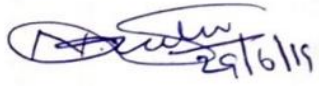



Dr. Velaga Joshi, Principal

M.A.(Phil.), M.A.(His), M.A. (M.C.J.), B.L., M.Phil., Ph.D.

MINUTES OF THE MEETING OF THE BOARD OF STUDIES IN ZOOLOGY

The meeting of the Board of Studies in the subject of **ZOOLOGY** was held on **29th June 2019** in Room No: **Zoology Department**, for Subject-Zoology and Aquaculture Technology syllabus, Semester-I in I. B.Sc (AT.Z.C) in the Course-Embedded Course in Aquaculture Technology under the chairmanship of Dr. M.Vijaya Kumar, Head of the Zoology Department. The following members attended the meeting:

1. **Dr. M.VIJAYA KUMAR** (In-charge of the Department & Chairman, BoS)
Lecturer in Zoology
SRR & CVR GDC (A) Vijayawada

2. **Dr.K.VEERAI AH** (University Nominee)
Professor
Department of Zoology & Aquaculture
Acharya Nagarjuna University. Guntur.AP

3. **Dr.CH.TULASI MASTANAMMA** (Subject Expert)
Lecturer in Zoology
Govt. Degree College for Women (A)
Guntur

4. **Dr.N.SREENIVAS** (Subject Expert)
Lecturer in Zoology
PR Govt.(A) College
Kakinada.AP

5. **Sri.RAGHURAM REDDY** (Special Member) *A. ch. e. ch. e. y.*
Neelagri Foundation
Atmakur, Guntur
6. **G.VANI** (Faculty Member) 
Lecturer in Zoology
SRR & CVR GDC (A), Vijayawada
7. **K. DURGA RAO** (Faculty Member) *k. Durga Rao*
Lecturer in Zoology
SRR & CVR GDC (A), Vijayawada
8. **Sk.Parveen** (Faculty Member) *Sk. Parveen*
Lecturer in Zoology
SRR & CVR GDC (A), Vijayawada

AGENDA

- Approval of Zoology and Aquaculture Technology subject syllabus in Embedded Course in Aquaculture Technology for Semester I from the academic year 2019-20
- Approval of Question paper blue print, model paper and List of Question Paper setters.
- Approval of dividing the 100 marks into two components for Theory
 - a) External 60 Marks: Section-A consisting 20 Marks
 - Short Answer questions (Any 5 from given 10)
 - Section-B consisting 40Marks
 - Essay Questions (Any 5 with internal choice from given 10)
 - b) Internal 40Marks. To evaluate Internal Assessment as follows:-
 1. Internal exams (2) -10 marks
 2. Assignments (two) -10 marks
 3. Project -10 marks
 4. Seminar -05 marks
 5. Attendance -05 marks
 - Total -40 marks
- The pass mark is 40% i.e., 24 out of 60 for External and 16 out of 40 for Internal.
- Approval of dividing the 50 marks into two components for Practicals
 - a) External 25 Marks:

1.Major Experiment	:	8 marks
2.Minor Experiment	:	4 marks
3.Identification (4)	:	8 marks
4.Viva voce	:	5 marks
 - b) Internal 25 Marks. .

1. Assessment	:	10 marks
2. Record	:	10 marks
3. Field note book	:	5 marks
- The minimum pass mark is 40% i.e., 10 out of 25 for External and Internal each.
- Approval of the list of paper setters and examiners
- Approval of the other Academic activities of the Department.
- Approval of any other matter with the permission of the Chairperson.

The Chairperson welcomed the members and initiated discussion on the syllabus upgradation in Aquaculture Technology Embedded course held on 29/06/2019 in the department of Zoology at 10.00 am. He apprised the members about the guidelines of the UGC and the CCE regarding the framing of syllabus and the recommended evaluation ratio for internal and external examinations. The members discussed in detail the various aspects presented before them and unanimously resolved the following:

RESOLUTIONS

1. Resolved to adopt the syllabus framed by CCE for Embedded Course in Aquaculture Technology and modify present University CBCS syllabus in Zoology and Aquaculture Technology syllabus so as to incorporate the Apprenticeship Programme.
2. Resolved to study the Animal Diversity Paper-I and Paper-II of the present University CBCS syllabus in Semester-I with slight modifications.
3. Resolved to approve the division of marks for internal and external examination along with the suggested blue print and model paper.
4. Resolved to approve the division of 100 marks into two components for Theory, External 60 Marks as Section-A consisting 20 Marks with Short Answer questions (Any 5 from given 10), Section-B consisting 40Marks with Essay Questions (Any 5 with internal choice from given 10)
5. Resolved to approve the division of Internal 40Marks to evaluate Internal Assessment as Two Internal exams for 10 marks, Two Assignments for 10 marks, Project work for 10 marks, Seminar for 05 marks and Attendance for 05 marks for Total of 40 marks
6. The pass mark is 40% i.e., 24 out of 60 for External and 16 out of 40 for Internal.
7. Resolved to approve the division of 50 marks into two components for Practicals, External 25 Marks as Major dissection/demonstration only for 8 marks, Mounting (2)/Minor dissection (1) for 4 marks, Identification for spotters (4) for 8 marks, Viva voce for 5 marks.
8. Resolved to approve the division of Internal 25 Marks as Assessment for 10 marks, Record for 10 marks, Field note book for 5 marks.
9. The pass mark is 40% i.e., 10 out of 25 for each External and Internal.
10. Resolved to adopt the Embedded Course in Aquaculture Technology in B.Sc with combination of Zoology and Chemistry (ATZC) syllabus for Semester I from the academic year 2019-20.
11. Resolved to use Virtual class room, ICT, Computer/Internet assisted learning for students regularly for teaching learning process.
12. Resolved to conduct student centric activities like Quiz, Group discussion etc
13. Resolved to arrange Field trips Surveys, Society outreach programmes etc.
14. Resolved to conduct Guest Lectures, Student Seminars, Study Projects etc
15. Resolved to give Assignments in the form of Critical, Innovative, Text book and Internet based
16. Resolved to use Learning Management System LMS
17. Resolved to advise the entire Faculty to apply for financial assistance to conduct Seminars/Workshops/Conferences /MRP's, etc.,
18. Resolved to approve the list of paper setters and examiners submitted by the department.

SRR & CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
ZOOLOGY- SYLLABUS (w.e.f -2019-20)

SEMESTER-I

PAPER – I

ANIMAL DIVERSITY – NONCHORDATES & CHORDATES

Periods : 60

Max. Marks :100

Unit -I

- 1.1. Protozoa General characters
- 1.2. Porifera General characters, Skelton in Sponges, Canal system in sponges
- 1.3.Coelenterata General characters, Polymorphism in coelenterates, Corals and coral reef formation
- 1.4.Platyhelminthes General Characters
- 1.5.Nemathehelminthes General Characters

Unit - II

- 2.1 Annelida General characters, Vermiculture - Scope, significance, earthworm species, processing, Vermicompost, economic importance of vermicompost
- 2.2 Arthropoda General characters *Peripatus* - Structure and affinities
- 2.3 Mollusca General characters Pearl formation in pelecypods
- 2.4 Echinodermata General characters, Water vascular system
- 2.5 Hemichordata General characters, Balanoglossus affinities

Unit - III

- 3.1 General characters of Prochordata and Chordata
- 3.2 Cyclosotamata Comparision of the *Petromyzon* and *Myxine*
- 3.3 General characters of Fishes, Migration in Fishes, Types of Scales, Dipno
- 3.4 General characters of Amphibia
- 3.5 General characters of Reptilia, Identification of Poisonous snakes and Skull in reptiles

Unit – IV

- 4.1 General characters of Aves
- 4.2 *Columba livia* - External features, Digestive system,
- 4.3 *Columba livia* Respiratory system, Heart, Brain
- 4.4 Migration in Birds
- 4.5 Flight adaptation in birds

Unit – V

- 5.1 General characters of Mammalia
- 5.2 Classification of Mammalia upto sub - classes with examples
- 5.3 Comparison of Prototherians, Metatherians and Eutherians
- 5.4 Dentition in mammals

SRR & CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
ZOOLOGY PRACTICAL SYLLABUS (w.e.f -2019-20)

SEMESTER-I

PAPER – I

ANIMAL DIVERSITY – NONCHORDATES & CHORDATES

Periods:24

Max. Marks:50

Observation of the following slides / spotters / models

Protozoa : *Elphidium, Paramecium* - Binary fission and conjugation

Porifera : *Spongilla, Euspongia, Sycon, Sycon* - T.S and L.S

Coelenterata : *Obelia* - colony and medusa,

Platyhelminthes : *Planaria*,

Nemathelminthes : *Ascaris* - Male and female, *Ancylostoma duodenale*

Annelida : *Neries, Heteroneries*,

Arthropoda : *Scolopendra, Sacculina, Limulus, Peripatus*

Mollusca : *Chiton, Murex, Sepia, Octopus, Nautilus*,

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

Hemichordata : *Balanoglossus*,

Protochordata : *Herdmania, Amphioxus, Amphioxus*

Cyclostomata : *Petromyzon, Myxine*

Pisces : *Pristis, Torpedo, Hippocampus, Exocoetus, Eheneis, Catla, Clarius*,

Placoid scale, Cycloid scale, Ctenoid scale

Amphibia : *Ichthyophis, Amblystoma*,

Reptelia : *Draco, Chamaeleon, Vipera russeli, Naja, Bungarus, Enhydrina, Testudo, Trionyx, Crocodilus*

Aves : *Passer, Columba, Corvus, Pavo*, Study of different types of feathers : Quill, Contour, Filoplume down

Mammalia : *Ornithorhynchus, Tachyglossus*,

Demonstration of dissection / dissected / virtual dissection :

1. Leech / Prawn / Scorpion / Crab - Digestive system

2. V, VII, IX, X cranial nerves of shark / locally available fishes

REFERENCE BOOKS

- Modern Text Book of Zoology Invertebrates – R.L.Kothpal
- Economic Zoology ---- Saras Publication
- Invertebrate Zoology ---E.L.Jordan & P.S.Verma
- General Parasitology (Academic Press) – Cheng T.C.
- Telugu Academy –Invertebrates
- Modern text book of VERTEBRATES- R.L. Kothpal
- Vertebrate Zoology -E.L.Jordan & P.S.Verma
- Telugu Academy: Vertebrates

SRR & CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
ZOOLOGY THEORY
INTERNAL MARKS ALLOTMENT

SEMESTER-I
PAPER – I
ANIMAL DIVERSITY – NONCHORDATES & CHORDATES

Zoology Theory- Internal

Total Marks: 40

1. Internals (2)	:	10 marks
2. Assignments (2)	:	5x2=10 marks
3. Project	:	10 marks
4. Seminar	:	5 marks
5. Attendance	:	5 marks

SRR & CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
ZOOLOGY THEORY
EXTERNAL MARKS ALLOTMENT

SEMESTER-I
PAPER – I
ANIMAL DIVERSITY – NONCHORDATES & CHORDATES

Zoology Theory- External

Total Marks: 60

Section –A

I.	Short Answer questions (Any 5 from given 10) 1 to 10	5x4=20
----	---	--------

Section –B

II.	Essay Questions (With internal choice) 11 to 15	5x8=40
-----	--	--------

SRR & CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
ZOOLOGY
PRACTICAL MARKS ALLOTMENT

SEMESTER-I
PAPER – I
ANIMAL DIVERSITY – NONCHORDATES & CHORDATES

Zoology Practical's - External

Time: 3 hrs.

Total Marks: 25

- | | |
|--------------------|-----------|
| 1.Major experiment | : 8 marks |
| 2.Minor experiment | : 6 marks |
| 3.Identification | : 6 marks |
| 4.Viva voce | : 5 marks |

Zoology Practical's - Internal

Total Marks: 25

- | | |
|-------------------|------------|
| 1.Assessment | : 10 marks |
| 2.Record | : 10 marks |
| 3.Field note book | : 5 marks |

Question Paper Blue Print

SRR&CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
ZOOLOGY THEORY
SEMESTER-I
PAPER – I
ANIMAL DIVERSITY – NONCHORDATES & CHORDATES

BLUE PRINT MODEL FOR EXTERNAL EXAMINATIONS

	Section A			Section B		
	Short Questions			Essay Questions		
	NO OF QUESTIONS	MARKS ALLOTTED FOR EACH QUESTION	TOTAL MARKS	NO OF QUESTIONS	MARKS ALLOTTED FOR EACH QUESTION	TOTAL MARKS
UNIT -I	02	4	8	02	8	16
UNIT-II	02	4	8	02	8	16
UNIT-III	02	4	8	02	8	16
UNIT-IV	02	4	8	02	8	16
UNIT-V	02	4	8	02	8	16

Section-A: Questions numbers 1 to 10,

Out of 10 Questions 5 has to be answered.

Section-B: Questions numbers 11 to 15,

Internal Choice (either / or) and 5 Questions has to be answered.

1. Short Questions : $5 \times 4 = 20$
2. Essay Questions : $5 \times 8 = 40$

Total : 60 Marks

Model Question Paper

SRR&CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)

ZOOLOGY
SEMESTER-I

PAPER – I

ANIMAL DIVERSITY – NONCHORDATES & CHORDATES

Time: 2½ hrs

Max Marks: 60

SECTION-A

I. Answer any FIVE of the following

Draw labeled diagram wherever necessary

5x4=20

1. General Characters of Protozoa
2. General Characters of Nematohelminthes
3. Structure of Peripatus
4. Affinities of Balanoglossus
5. Placoid scale
6. Diponi
7. General Characters of Aves
8. External features of Pigeon
9. General Characters of Mammalia
10. Prototheria

SECTION-B

II. Answer any FIVE of the following

Draw labeled diagram wherever necessary

5x8=40

11. (a) Describe the Canal system in Sponges
Or
(b) Write an essay on Polymorphism in Coelenterates
12. (a) Write the process in preparation of vermicompost and economic importance of vermicompost.
Or
(b) Explain the water vascular system in Echinodermata.
13. (a) Compare the characters of *Petromyzon* and *Myxine*
Or
(b) Write an essay on migration in fishes
14. (a) Describe the respiratory system of pigeon and add a note on mechanism of respiration.
Or
(b) Write an essay on flight adaptations in birds
15. (a) Write an essay on dentition in mammals
Or
(b) Compare the characters of Metatheria and Eutheria

SRR&CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
AQUACULTURE TECHNOLOGY SYLLABUS (w.e.f -2019-20)
SEMESTER-I
PAPER – I
BASIC PRINCIPLES OF AQUACULTURE

Periods: 60

Max.marks: 100

UNIT-I: INTRODUCTION

- 1-1 Concept of Blue Revolution - History and definition of Aquaculture
- 1-2 Scope of Aquaculture at global Level, India and Andhra Pradesh
- 1-3 Fresh water aquaculture, brackish water aquaculture and mariculture
- 1-4 Different Aquaculture systems – Pond, Cage, Pen, Running water, Extensive, Intensive and & Semi-Intensive Systems and their significance. Monoculture, Polyculture and Monosex culture systems
- 1-5 Aquaculture versus Agriculture; Present day needs with special reference to Andhra Pradesh

UNIT-II: POND ECOSYSTEM

- 2-1 General Concepts of Ecology, Carrying Capacity and Food Chains
- 2-2 Lotic and lentic systems, streams and springs
- 2-2 Nutrient Cycles in Culture Ponds – Phosphorus, Carbon and Nitrogen
- 2-3 Importance of Plankton and Benthos in culture ponds, nutrient dynamics and algal blooms
- 2-4 Concepts of Productivity, estimation and improvement

UNIT-III: TYPES OF FISH PONDS

- 3-1 Classification of ponds based on water resources – spring, rain water, flood water, well water and water course ponds
- 3-2 Functional classification of ponds – head pond, hatchery, nursery, rearing, production, stocking and quarantine ponds
- 3-3 Hatchery design

UNIT- IV: POND PREPARATION

- 4-1 Important factors in the construction of an ideal fish pond – site selection, topography, nature of the soil, water resources
- 4-2 Lay out and arrangements of ponds in a fish farm
- 4-3 Construction of an ideal fish pond – space allocation, structure and components of barrage pond

UNIT-V: POND MANAGEMENT FACTORS

- 5-1** Need of fertilizer and manure application in culture ponds; Role of nutrients; NPK contents of different fertilizers and manures used in aquaculture; and precautions in their application
- 5-2** Physico-chemical conditions of soil and water optimum for culture –temperature, depth, turbidity, light, water and shore currents, PH, DOD, CO₂ and nutrients; measures to increase oxygen and reduce ammonia & hydrogen sulphide in culture ponds; correction of PH
- 5-3** Eradication of predators and weed control – advantages and disadvantages of weed, weed plants in culture ponds, aquatic weeds, weed fish, toxins used for weed control and control of predators

SRR & CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
AQUACULTURE TECHNOLOGY PRACTICAL SYLLABUS (w.e.f -2019-20)
SEMESTER-I
PAPER – I
BASIC PRINCIPLES OF AQUACULTURE

Periods: 24

Max. Marks: 50

1. Estimation of Carbonates, Bicarbonates in water samples
2. Estimation of Chlorides in water samples
3. Estimation of dissolved oxygen
4. Estimation of ammonia in water
5. Field visit to nursery, rearing and stocking ponds of aqua farms
6. Field visit to hatchery
7. Study of algal blooms and their control
8. Collection & identification of zooplankton and phytoplankton
9. Study of aeration devices
10. Determination of soil nitrogen and phosphorus
11. Collection and study of aquatic weeds
12. Field survey of nearby habitat for dietary dependency on and requirement of aquaproducts

Laboratory record work shall be submitted at the time of practical examination

PRESCRIBED BOOK(S):

1. Jhingran VG 1998. Fish and Fisheries of India. Hindusthan Publishing Corporation, New Delhi
2. Pillay TVR, 1996. Aquaculture Principles and Practices, Fishing News Books Ltd., London

REFERENCES:

1. Pillay TVR & M.A.Dill, 1979. Advances in Aquaculture. Fishing News Books Ltd., London
2. Stickney RR 1979. Principles of Warm Water Aquaculture. John Wiley & Sons Inc. 1981
3. Boyd CE 1982. Water Quality Management for Pond Fish Culture. Elsevier Scientific Publishing Company.
4. Bose AN et.al., 1991. Coastal Aquaculture Engineering. Oxford & IBH Publishing Company Pvt.Ltd.

SRR & CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
AQUACULTURE TECHNOLOGY THEORY (w.e.f -2019-20)

INTERNAL MARKS ALLOTMENT

SEMESTER-I

PAPER – I

BASIC PRINCIPLES OF AQUACULTURE

Theory- Internal

Total Marks: 40

- | | | |
|------------------------------|---|--------------|
| 1. Project | : | 10 marks |
| 2. Assignments (2) | : | 5x2=10 marks |
| 3. Internals (2) Best of Two | : | 10 marks |
| 4. Seminar | : | 5 marks |
| 5. Viva voce | : | 5 marks |

SRR & CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
AQUACULTURE TECHNOLOGY THEORY (w.e.f -2019-20)

EXTERNAL MARKS ALLOTMENT

SEMESTER-I

PAPER – I

BASIC PRINCIPLES OF AQUACULTURE

Theory- External

Total Marks: 60

Section –A

- | | | |
|--|--|--------|
| I. Short Answer questions (Any 5 from given 10)
1 to 10 | | 5x4=20 |
|--|--|--------|

Section –B

- | | | |
|--|--|--------|
| II. Essay Questions (With internal choice)
11 to 15 | | 5x8=40 |
|--|--|--------|

SRR & CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
AQUACULTURE TECHNOLOGY (w.e.f -2019-20)

PRACTICAL MARKS ALLOTMENT

SEMESTER-I

PAPER – I

BASIC PRINCIPLES OF AQUACULTURE

Practical's - External

Time: 3 hrs.

Total Marks: 25

- | | |
|-----------------------------------|---------------------|
| 1. Identification of given sample | : 6 marks |
| 2. Identification of given sample | : 6 marks |
| 3. Identification (2) | : 5 marks (2x2 1/2) |
| 4. Record | : 5 marks |
| 5. Viva voce | : 3 marks |

Practical's – Internal

Total Marks: 25

- | | |
|-----------------------------------|-----------|
| 1. Assessment including viva voce | : 6 marks |
| 2. Record | : 6 marks |
| 3. Field note book | : 5 marks |
| 4. Project | : 8 marks |

Question Paper Blue Print

SRR&CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)
AQUACULTURE TECHNOLOGY THEORY (w.e.f -2019-20)

SEMESTER-I
PAPER – I
BASIC PRINCIPLES OF AQUACULTURE

BLUE PRINT MODEL FOR EXTERNAL EXAMINATIONS

	Section A			Section B		
	Short Questions			Essay Questions		
	NO OF QUESTIONS	MARKS ALLOTTED FOR EACH QUESTION	TOTAL MARKS	NO OF QUESTIONS	MARKS ALLOTTED FOR EACH QUESTION	TOTAL MARKS
UNIT -I	02	4	8	02	8	16
UNIT-II	02	4	8	02	8	16
UNIT-III	02	4	8	02	8	16
UNIT-IV	02	4	8	02	8	16
UNIT-V	02	4	8	02	8	16

Section-A: Questions numbers 1 to 10,

Out of 10 Questions 5 has to be answered.

Section-B: Questions numbers 11 to 15,

Internal Choice (either / or) and 5 Questions has to be answered.

1. Short Questions : 5 x 4 = 20
2. Essay Questions : 5 x 8 = 40

Total : 60 Marks

Model Question Paper

**SRR&CVR GOVT. DEGREE COLLEGE (A), VIJAYAWADA.
I B.Sc AT.Z.C (EMBEDDED COURSE IN AQUACULTURE TECHNOLOGY)**

AQUACULTURE TECHNOLOGY (w.e.f -2019-20)

SEMESTER-I

PAPER – I

BASIC PRINCIPLES OF AQUACULTURE

Time: 2½ hrs

Max Marks: 60

SECTION-A

**I. Answer any FIVE of the following
Draw labeled diagram wherever necessary**

5x4=20

1. Monoculture
2. Brackish water culture
3. Lotic system
4. Phosphorus cycle
5. Nursery pond
6. Flood water
7. Barrage pond
8. Topography
9. Weed fish
10. B.O.D.

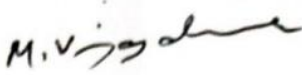





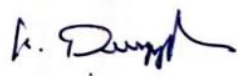

SECTION-B

**II. Answer any FIVE of the following
Draw labeled diagram wherever necessary**

5x8=40

11. a. Explain Fresh water aquaculture
(or)
b. Explain Intensive and Semi-Intensive aquaculture.
12. a. Explain Carbon cycle
(or)
b. Describe the importance of plankton and Benthos in culture ponds .
13. a. Explain different types of ponds in aquaculture.
(or)
b. Describe how to design Hatchery .
14. a. Which important factors are involved to construct an ideal fish pond.
(or)
b. Explain the components of barrage pond.
15. a. Explain chemical factors effect in aquaculture.
(or)
b. write about weed control in aquaculture.

Signatures of the Memebbers in BOS

1. **Dr. M.VIJAYA KUMAR** (Chairman) 
Lecturer in Zoology
SRR & CVR GDC (A) Vijayawada
2. **Dr.K.VEERAAIAH** (University Nominee) 
Professor
Department of Zoology & Aquaculture
Acharya Nagarjuna University,
Guntur.AP
3. **Dr.CH.TULASI MASTANAMMA** (Subject Expert) 
Associate Professor
Department of Zoology
Govt. Degree College for Women (A)
Guntur
4. **Dr.N.SREENIVAS** (Subject Expert) 
Associate Professor
Department of Zoology
PR Govt.(A) College
Kakinada.AP
5. **Sri.RAGHURAM REDDY** (Special Member) 
Neelagri Foundation
Atmakur,Guntur
6. **G.VANI** (Faculty Member) 
Lecturer in Zoology
SRR & CVR GDC (A), Vijayawada
7. **K. DURGA RAO** (Faculty Member) 
Lecturer in Zoology
SRR & CVR GDC (A), Vijayawada
8. **Sk.Parveen** (Faculty Member) 
Lecturer in Zoology
SRR & CVR GDC (A), Vijayawada