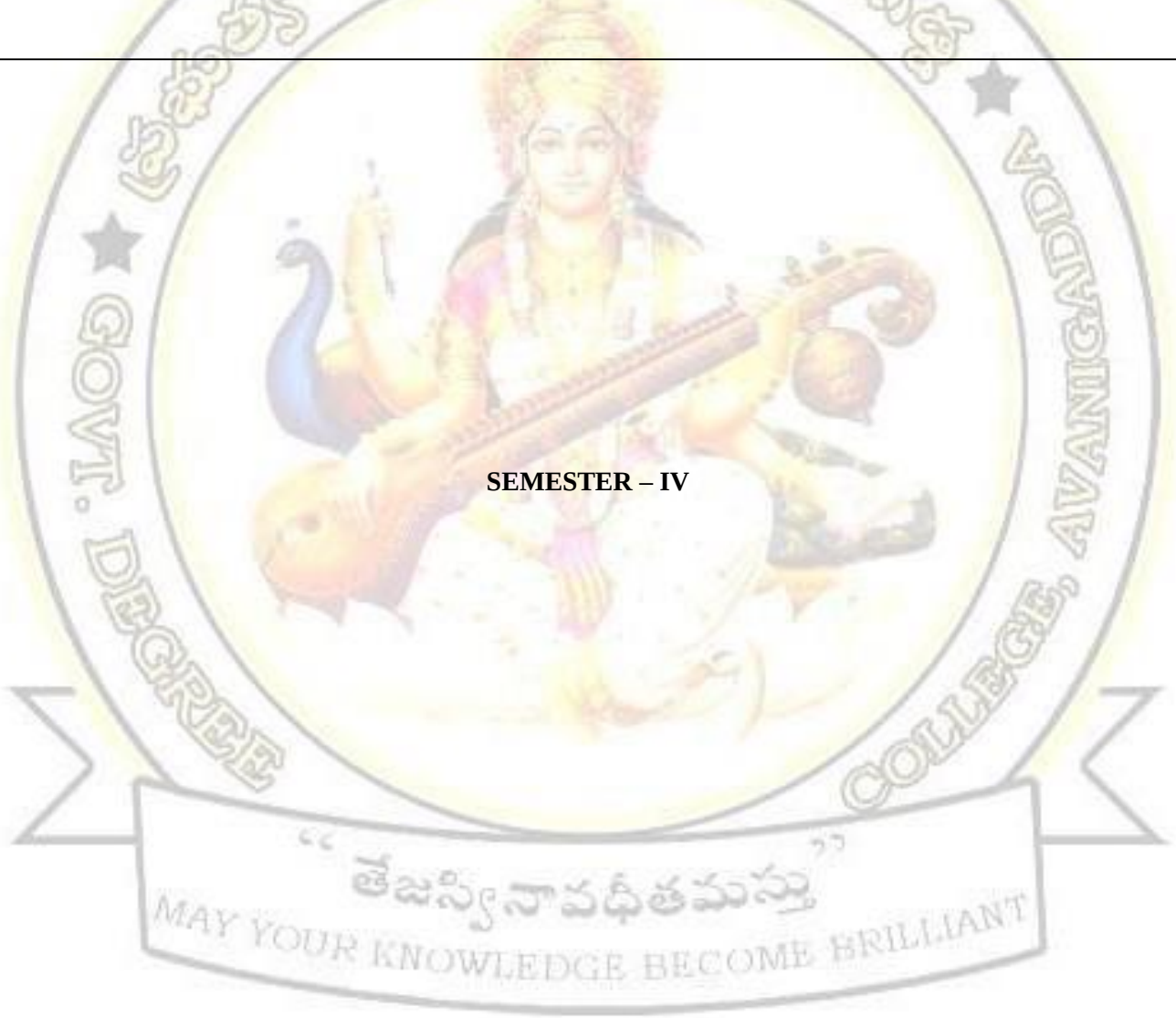
GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)Syllabus & Title of the paper

SEMESTER-IV						
	GENERAL COMPONENTS					
No.	**TITLE**	**Credits**	**Hours Week**	**Internal marks**	**External marks**	**Total**
1	**Chemistry**	**4T**	**4T**	**25**	**75**	**100**
	Chemistry practical – IV	**1P**	**2P**	**25**	**25**	**50**
2	**Zoology**	**4T**	**4T**	**25**	**75**	**100**
	Zoology practical – IV	**1P**	**2P**	**25**	**25**	**50**
3	**ORNAMENTAL FISHES**	**4T**	**4T**	**25**	**75**	**100**
	Aqua practical	**1P**	**2P**	**25**	**25**	**50**
4	**FISHERIES EXTENSION , ECONOMICS & MARCKETING**	**4T**	**4T**	**25**	**75**	**100**
	Aqua practical	**1P**	**2P**	**25**	**25**	**50**
6	**Larval nutrition & culture of fish food organisims**	**4T**	**4T**	**25**	**75**	**100**
	Aqua practical	**1P**	**2P**	**25**	**25**	**50**
7	**Field work / Project**	**5F/P**			**200**	**200**
	GRAND TOTAL	**30**				**TOTAL : 950**


GOVT. DEGREE COLLEGE, AVANIGADDA
" తేజస్వినావధీతమస్తు "
MAY YOUR KNOWLEDGE BECOME BRILLIANT

SEMESTER – IV

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – X
ORNAMENTAL FISHERIES

OBJECTIVES:	LEARNING OUT COME
To develop basic knowledge aboutvarious crafts **To understand operation of variousfishing gears** **To create awareness about fishfinding devices.**	➢ **Student will learn the knowledge on the crafts.** ➢ **Mechanism involved in the operation of the fishing gear will be learnt by the student.** ➢ **Tools for the identification of fishery resources will be learnt by the student.**

Unit 1: Introduction
1.1. Introduction to aquarium, ornamental fishes and Equipment and accessories- Aerators, filters and lighting.
1.2. World aquarium trade and present status. Design and construction of public fresh water and marine aquaria and oceanarium.
1.3. Water quality management in aquarium fishes, Biofilters in aquarium.
Unit 2: Aquarium Management
2.1. Setting up of aquarium – under gravel filter, pebbles, plants, drift wood, ornamental objects and selection of fishes, Quarantine measures.
2.2. Aquarium maintenance and water quality. Control of snail and algal growth.
2.3. Handling, care and transportation of fish. Temperature acclimation, oxygen packing.
2.4. Food and feeding-Source of feed, different types of food for aquarium fish, monitoring and adjusting.
Unit 3: Freshwater Ornamental Fishes
3.1. Species of ornamental fishes; their taxonomy and biology- Live bearers, Gold fish and koi, Gourami, Barbs and Tetras, angel fish, cichlids.
3.2. Setting up the tank-Choosing the tank, lighting and heating, filtration and aeration, choosing plants, preparing the tank.
Unit 4: Marine Ornamental Fishes
4.1. Marine ornamental fishes – varieties and their habitat.
4.2. Setting up the tank-lighting considerations, siting and substrate, heating and filtration, preparing the tank.
Unit 5: Nutrition and Disease
5.1. Nutritional requirements of aquarium fishes. Different kinds of feeds. Culture of fish food organisms; Preparation of dry feeds; feeding methods.
5.2. Use of pigments for colour enhancement. Larval feeds and feeding.
5.3. Common parasites infecting ornamental fishes. Bacterial, viral, fungal diseases of ornamental fishes and their control and prophylaxis.

1.Biswas. S.P., J.N.Das, U.K.Sarkar and Lakra W.S. 2007 Ornamental fishes of North East India An Atlas : NBFGR
2.Marine Aquarium keeping : The Sciences, Animals and Art. John Wiley & Sons, New York
3. Ramachandran.A, Breeding, Farming and Management of Fishes, CUSAT
4. Madhusoodanakurup etal – Ornamental Fish - Breeding, Farming and Trade CUSAT.
5. Jhingran,V.G. Fish and Fisheries of India.
6. Bijukumar,A. Rearing of Aquarium Fishes.
7. Rath,A.K. Freshwater Aquaculture,
8. Santhanam, et.al. a Manual of Freshwater Aquaculture.

Supplementary Reading :

1. Murthi.V.S. 2002 Marine ornamental Fishes of Lakshadweep CMFRI, Special publication 72

Advanced Reading

1. Butting.B., Holthus, P.S. Dalding,S. 2003, Marine Aquarium Industry and conservation.
2. Oliver, K 2003. World trade in ornamental species
3. Marine Ornamental species; collection,……. and Conservation
4. Fish Disease and Disorders, CAB international, Oxford.

Other Reference Books:

1. Bardach, et. Al. Aquaculture – The Farming and Husbandry of Freshwater and Marine Organisms. John Wiley & Sons, NY, 1972.
2. Stickney, R.R. Principles of Water Aquaculture. John Wiley & Sons, NY, 1979.
3. Chondar, C.L. Hypophysation of Indian major carps. Satish Book Enterprise, Agra, 1980.
4. Jhingran, V.G. Fish and fisheries of India. Hindustan Publ. Corporation (India), 1982.
5. Santhanam, R. et. Al. A Manual of Freshwater Aquaculture. Oxford & IBH Publishing Co. Pvt. Ltd., 1987.

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – X
ORNAMENTAL FISHERIES

Theory- Internal **Total Marks: 25**

1Internals (2) Best of Two : 10 marks
2. Assignments (5) : 5x1=5marks
3. Seminar : 5 marks
4. Attendance : 5marks

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – X
ORNAMENTAL FISHERIES

Aquaculture :Theory- **External Total Marks: 75**

Section –A

Short Answer questions 1 to 8 (Any 5 from given 10) **5×5=25**

Section –B

Essay Questions 9 to 13 (With internal choice) **5×10=50**

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – X
ORNAMENTAL FISHERIES
Question Paper Blue Print

BLUE PRINT MODEL FOR EXTERNAL EXAMINATIONS 75Marks

	Section A Short Questions			Section B Essay Questions		
	NO OF QUESTIONS	MARKS ALLOTED FOREACH QUESTION	TOTAL MARKS	NO OF QUESTIONS	MARKS ALLOTED FOREACH QUESTION	TOTAL MARKS
UNIT –I	02	5	10	02	10	20
UNIT-II	02	5	10	02	10	20
UNIT-III	02	5	10	02	10	20
UNIT-IV	1	5	5	02	10	20
UNIT-V	1	5	5	02	10	20

Section-A: Questions numbers 1 to 8

Out of 10 Questions 5 has to be answered.

Section-B: Questions numbers 9 to 13,

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

1. ShortQuestions : 5 x 5 = 25
2. EssayQuestions : 5 x 10 = 50

Total : 75

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – X
ORNAMENTAL FISHERIES

Time: 3 Hours Maximum: 75 Marks

I. Answer any FIVE of the following : 5x5=25
Draw labelled diagrams wherever necessary

1. Oceanarium
3. Gravel filters
4. Types of food for aquarium
5. Live bearers
6. Clown fishes
7. Prophylaxis
8. Importance of ornamental fishes

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

9. a) Water quality management in aquarium fishes.

OR

b) Design and construction of public fresh water aquaria.

10. a) Set up the aquaria with quarantine measure.

OR

b) Maintenance of Aquaria with control of snail and algal growth.

11. a) Explain briefly taxonomy and biology of ornamental fishes.

OR

b) General principles of reproduction in ornamental fishes.

12. a) Breeding of marine ornamental fishes.

OR

b) Explain habit and habitat of different types of marine ornamental fishes.

13. a) Give notes on bacterial disease and causative organisms and prophylaxis.

OR

b) Importance of pigments in ornamental fishes.

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – X
ORNAMENTAL FISHERIES PRACTICAL

ORNAMENTAL FISH CULTURE

1. Identification of common Fresh water and marine aquarium fishes (10 Nos.)
2. Construction of aquarium
3. Setting up of aquarium (maintained by students can be evaluated after one month)
4. Water quality management in aquariums
5. Aquarium plants and décor materials
6. Air pump and biological filter
7. Breeding of live bearers-Guppy
8. Breeding of egg layers- gold fishes
9. Breeding of bubble nest builder- Gourami

PRESCRIBED BOOK(S):

1. Adivi Reddy sv 1997. An introduction to extension education. Oxford & IBH Co.Pvt. Ltd. New Delhi
2. Jayaraman R 1996. Fisheries Economics. Tamilnadu Veterinary and Animal Science University. Tuticorn
3. Subba Rao N 1986. Economics of Fisheries. Daya publishing house, Delhi

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – X

ORNAMENTAL FISHERIES PRACTICAL

Practical's – Internal:

Time: 2 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 – External : **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

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
PAPER – X
ORNAMENTAL FISHERIES PRACTICAL

Time: 2hrs **Max.Marks:25**

PRACTICAL MODEL PAPER

I. **10marks**
III. `Identify **10marks**
IV. Record 5marks

*******`**

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV

PAPER – XI

FISHERIES EXTENSION, ECONOMICS & MARKETING

Hours 4 **Credits 4**

OBJECTIVES:	LEARNING OUT COME
[To develop basic knowledge aboutvarious crafts [To understand operation of variousfishing gears [To create awareness about fishfinding devices.	➢ Student will learn the knowledge on the crafts. ➢ Mechanism involved in the operation of the fishing gear will be learnt by the student. ➢ Tools for the identification of fishery resources will be learnt by the student.

UNIT – 1 INTRODUCTION

1-1 Meaning and scope of economics with reference to fisheries

1-2 Basic concepts of economics – goods, services, wants and utility, demand and supply, value price, market demand and individual demand, elasticity of demand**,** law of diminishing

marginal utility

UNIT – I1 FISHERIES MARKETING

1 Basic marketing functions, consumer behaviour and demand, fishery market survey and test marketing a product

2 Fish marketing – prices and price determination of fishes

2-3 Marketing institutions- primary(producer fishermen, fishermen cooperatives, and fisheries corporations) and secondary (merchant/agent/speculative middlemen)

UNIT-III FISHERIES ECONOMICS

3-1 Aquaculture economics- application of economics principles to aquaculture operations

3-2 Various inputs and production function. Assumptions of production function in aquaculture

3-3 Cost and earnings of aquaculture systems – carp culture, shrimp farming systems, hatcheries,

Cost and earnings of fishing units and freezing plants

UNIT-IV FISHERIES EXTENSION& TRANSFER OF TECHNOLOGY

4-1 Fisheries extension – scope and objectives, principles and features of fisheries Extension.

Education; Fisheries extension methods and rural development

4-2 Adoption and diffusion of innovations; ICAR programs – salient features of ORP, NDS,LLP, IRDP

Internal Evalution

- **Assignments**
- **Seminars**

- **Quiz**
- **Field Trips**

Suggested reading

Core reading

8. Boopendranath, M.R., Meenakumari, B., Joseph, J., Sankar, T.V., Pravin,P., and Edwin, L. (Eds.) 2002, Riverine and ReservoirFisheries of India, Society of Fisheries Technologists (India),Cochin.

9. Brandt. A. v. (1984) Fish catching methods of the world. Fishing News Books Ltd., London: 432 p.

10. George V.C. (1971) An account of the inland fishing gears and methods of India. Spl. Bull.No.1.CIFT

11. Hameed, M.S. and Boopendranath, M.R. (2000) Modern Fishing Gear Technology, DayaPublishing House, Delhi:186 p.

12. Klust, G. (1982) Netting materials for fishing gear, FAO Fishing Manual, Fishing News Books(Ltd)., Farnham, 192p.

13. Sainsbury, J.C. (1986) Commercial fishing methods- An introduction to vessels and gear.Fishing News Books, Oxford: 208pp

14. Sreekrishna, Y. and Shenoy L. (2001) Fishing gear and craft technology, Indian Council ofAgricultural Research, New Delhi.

Supplementary & advanced reading

3. Gulland, J.A.1974, Guidelines for Fishery Management, IOFC Dev. 74-36 FAO Rome

4. FAO (1997) Fisheries management. FAO Technical Guidelines for Responsible Fisheries. No.

4. Fishery Resources Division and Fishery Policy and Planning Division, FAO. Rome: 82p.

5. FAO (1995) Code of Conduct for Responsible Fisheries, FAO, Rome: 41 p.

6. FAO (1997) Inland fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 6Fisheries Department, FAO, Rome: 36 p.

Other Reference Books:

1. **Jhingran, V.G. 1993. Fish and fisheries of India. Hindustan Publishing Corporation(India), New Delhi.**
2. **Ricker, W.E. 1984. Methods for assessment of fish production in freshwaters. BlackwellPublications.**
3. **Srivastava, C.B.L., 1985. Textbook of Fishery Science and Indian Fisheries. KutubMahal Publications, Allahabad.**
4. **S.S. Khanna. An introduction to fishes**
5. **Kurian, C.V. and Sebastian, V.O. 1986. Prawns and prawn fishery of India. HindustanPublishing Corporation (India), New Delh**

GOVERNMENT DEGERR COLLEGE

AVANIGADDA

B.Voc.(Aquaculture)

Semester-IV

PAPER – XI

FISHERIES EXTENSION, ECONOMICS & MARKETING

Theory- Internal **Total Marks: 25**

1Internals (2) Best of Two : 10 marks
2. Assignments (5) : 5x1=5marks
3. Seminar : 5 marks
4. Attendance : 5marks

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – XI
FISHERIES EXTENSION, ECONOMICS & MARKETING

Aquaculture :Theory- **External Total Marks: 75**

Section –A

Short Answer questions 1 to 8 (Any 5 from given 10) **5×5=25**

Section –B

Essay Questions 9 to 13 (With internal choice) **5×10=50**

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Question Paper Blue Print
Semester-IV

PAPER – XI
FISHERIES EXTENSION, ECONOMICS & MARKETING

BLUE PRINT MODEL FOR EXTERNAL EXAMINATIONS 75Marks

	Section A Short Questions			Section B Essay Questions		
	NO OF QUESTIONS	MARKS ALLOTED FOREACH QUESTION	TOTAL MARKS	NO OF QUESTIONS	MARKS ALLOTED FOREACH QUESTION	TOTAL MARKS
UNIT –I	02	5	10	02	10	20
UNIT-II	02	5	10	02	10	20
UNIT-III	02	5	10	02	10	20
UNIT-IV	02	5	10	02	10	20

Section-A: Questions numbers 1 to 8

Out of 10 Questions 5 has to be answered.

Section-B: Questions numbers 9 to 13,

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

1. ShortQuestions : 5 x 5 = 25
2. EssayQuestions : 5 x 10 = 50

Total : 75

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
MODEL QUESTION PAPER

Time: 3 hrs. **TITLE: FISHING METHODS,** **Marks: 75**

I. Answer any FIVE of the following : **5x5=25**
Draw labelled diagrams wherever necessary

1.
2.
3.
4.
5.
6.
7.
8.

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

9.
a)
OR
b)

10.
a)
OR
b)

11.
a)
OR
b)

12.
a)
OR
b)

13.
a)
OR
b)

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – XI
FISHERIES EXTENSION, ECONOMICS & MARKETING

Max. Marks: 50

PRACTICAL:

1. Models on the calculation of economics of fish farm
2. Preparation of DPR for fish farm
3. Cost benefit analysis models

PRESCRIBED BOOK(S):

1. Adivi Reddy sv 1997. An introduction to extension education. Oxford & IBH Co.Pvt. Ltd. New Delhi
2. Jayaraman R 1996. Fisheries Economics. Tamilnadu Veterinary and Animal Science University. Tuticorn
3. Subba Rao N 1986. Economics of Fisheries. Daya publishing house, Delhi

REFERENCES:

1. Dewwett KK and Varma JD 1993. Elementary economic theory. S.chand, New Delhi
2. Korakandy R 1996. Economics of Fisheries Mangement. Daya Publishing House, Delhi
3. Tripathi SD 1992. Aquaculture Economics. Asian Fisheries Society, Mangalore.

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – XI
FISHERIES EXTENSION, ECONOMICS & MARKETING

Practical's –Internal:

Time: 2 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 – External : **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

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – XI
FISHERIES EXTENSION, ECONOMICS & MARKETING

Time: 2hrs **Max.Marks:25**

PRACTICAL MODEL PAPER

I. **10marks**
V. **`Identify** **10marks**
VI. **Record** **5marks**

*****

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – XII
LARVAL NUTRITION AND CULTURE OF FISH FOOD ORGANISMS
Hours 4 **Credits 4**

OBJECTIVES:	LEARNING OUT COME
▯ To develop basic knowledge aboutvarious crafts ▯ To understand operation of variousfishing gears ▯ To create awareness about fishfinding devices.	➢ Student will learn the knowledge on the crafts. ➢ Mechanism involved in the operation of the fishing gear will be learnt by the student. ➢ Tools for the identification of fishery resources will be learnt by the student.

Unit 1: Live Feeds
1.1. Different live feeds and their nutritional value. Manipulation of pond for natural feed production.
1.2. Candidate species of phytoplankton and zooplankton for fish and shell fish culture – diatoms, micro algae, nano planktons, Artemia, copepods, cladocera and rotifers.
Unit 2: Culture of Phytoplankton
2.1 Methods of collection and preservation; maintenance of pure culture of Phytoplankton.
2.2 Mass culture. Culture of important microalgae, Chaetoceros, Tetraselmis, Skeletonema, Spirulina and Chlorella**.**
Unit 3: Culture of Zooplankton
1.1. Methods of collection and preservation; maintenance and rearing of Rotifers, Cladocerans, Copepods, and insect larvae. Mass culture of zooplankton.
1.2. Harvest, storage and feeding.
Unit 4: Artemia culture
4.1 Different strains of Artemia. Artemia culture. Cyst production. Enrichment of Artemia cyst and larvae.
4.2 Decapsulation of Artemia cysts. Hatching, storage and feeding.
Unit 5: Alternative live feeds and Periphyton culture
5.1. Culture methods of Infusoria, Chironomids, polychaetes.
5.2. Nutritional qualities of alternative live feeds.
5.3. Applications Importance of periphyton in aquaculture.

Reference Books:
1. Fundamentals of mathematical statistics – Gupta and Kapoor.
2. Fundamentals of Statistics – S.P. Gupta
3. Elementary Statistics – Yule and Kendall
4. Introduction to Biostatistics – Sokal & Rohlf
5. Fundamentals of Biostatistics – By Khan and Khanum

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – XII
LARVAL NUTRITION AND CULTURE OF FISH FOOD ORGANISMS

Theory- Internal **Total Marks: 25**

1Internals (2) Best of Two : 10 marks
2. Assignments (5) : 5x1=5marks
3. Seminar : 5 marks
4. Attendance : 5marks

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – XII
LARVAL NUTRITION AND CULTURE OF FISH FOOD ORGANISMS

Aquaculture :Theory- **External Total Marks: 75**

Section –A

Short Answer questions 1 to 8 (Any 5 from given 10) **5×5=25**

Section –B

Essay Questions 9 to 13 (With internal choice) **5×10=50**

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Question Paper Blue Print
Semester-IV
PAPER – XII
LARVAL NUTRITION AND CULTURE OF FISH FOOD ORGANISMS

BLUE PRINT MODEL FOR EXTERNAL EXAMINATIONS 75Marks

	Section A Short Questions			Section B Essay Questions		
	NO OF QUESTIONS	MARKS ALLOTED FOREACH QUESTION	TOTAL MARKS	NO OF QUESTIONS	MARKS ALLOTED FOREACH QUESTION	TOTAL MARKS
UNIT –I	02	5	10	02	10	20
UNIT-II	02	5	10	02	10	20
UNIT-III	02	5	10	02	10	20
UNIT-IV	1	5	5	02	10	20
UNIT-V	1	5	5	02	10	20

Section-A: Questions numbers 1 to 8

Out of 10 Questions 5 has to be answered.

Section-B: Questions numbers 9 to 13,

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

1. **ShortQuestions : 5 X 5 = 25**
2. **EssayQuestions : 5 X 10 = 50**

Total : 75

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – XII
LARVAL NUTRITION AND CULTURE OF FISH FOOD ORGANISMS

ANSWER ANY FIVE OF THE QUESTIONS 5×5=25M

1. Artemia salina
2. Phytoplankton
3. Rotifers
4. Mysis larva
5. Periphyton
6. Feed additives
7. Micro Algae
8. Polychaete culture

5×10=50M

ANSWER ANY FIVE OF THE QUESTIONS

9. a) Write an essay on Different live feeds and their nutritional value

OR

b) Write about the important species of plankton in fish culture?

10. a) Explain the Methods of collection and preservation of phytoplankton?

OR

b) Write an essay on Culture of important microalgae?

11.a) Write about the Methods of collection and preservation of zooplankton?

OR

b) Write about the Mass culture of zooplankton?

12. a) Describe the culture of Artemia?

OR

b) Write an essay on Decapsulation of Artemia cysts?

13. a) Explain about the Applications Importance of periphyton in aquaculture?

OR

b) Describe the Nutritional qualities of alternative live feed

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV

LARVAL NUTRITION AND CULTURE OF FISH FOOD ORGANISMS

PRACTICAL:

A. Dinoflagellates

1. *Ceratium* sp.
2. *Protoperidinium* sp.
3. *Dinophysis* sp.

B. Blue Green Algae (BGA)

1. *Trichodesmium* sp.
2. *Spirulena* sp.
3. *SNostoc* sp.
4. *Anabena* sp.

C. Identification of **zooplankton**

1. Copepods
2. Amphipods
3. Luciferans
4. Ephasids
5. Mysids
6. Zoea larvae
7. Megalopa larvae
8. Pteropods
9. Ostracoda
10. Cladocerans

PRESCRIBED BOOK(S):

1. Adivi Reddy sv 1997. An introduction to extension education. Oxford & IBH Co.Pvt. Ltd. New Delhi
2. Jayaraman R 1996. Fisheries Economics. Tamilnadu Veterinary and Animal Science University. Tuticorn
3. Subba Rao N 1986. Economics of Fisheries. Daya publishing house, Delhi
1. Dewwett KK and Varma JD 1993. Elementary economic theory. S.chand, New Delhi
2. Korakandy R 1996. Economics of Fisheries Mangement. Daya Publishing House, Delhi
3. Tripathi SD 1992. Aquaculture Economics. Asian Fisheries Society, Mangalore.
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GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – XII

Practical's – Internal:

Time: 2 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 – External : 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

GOVERNMENT DEGERR COLLEGE
AVANIGADDA
B.Voc.(Aquaculture)
Semester-IV
PAPER – XII

Time: 2hrs **Max.Marks:25**

PRACTICAL MODEL PAPER

I. 10marks
VII. `Identify 10marks
VIII. Record 5marks

*****

B.JAYA SAI
Lecturer in Aquaculture
G.D.C,AVNIGADDA
9177678905