

Section A– 30 Marks

1. **Aquaculture Production Systems in Nepal** **30%**
- 1.1 Aquaculture Practices
 - 1.1.1 Cage fish culture
 - 1.1.2 Enclosure fish culture
 - 1.1.3 Raceway fish culture
 - 1.1.4 Integrated fish culture
 - 1.1.5 Rice fish culture
 - 1.2 Aquaculture Systems
 - 1.2.1 Monoculture
 - 1.2.2 Polyculture
 - 1.2.3 Monosex culture
 - 1.3 Aquaculture Techniques
 - 1.3.1 Extensive
 - 1.3.2 Semi-intensive
 - 1.3.3 Intensive
 - 1.3.4 Super-intensive

Section B– 20 Marks

2. **Management Practices in Aquaculture** **10%**
- 2.1 Management techniques in Nursery, Rearing and Production Ponds
 - 2.2 Application of feed, fertilizer and chemicals, liming and organic manure in ponds
 - 2.3 Importance of growth checkup
 - 2.4 Water quality management
 - 2.5 Record keeping
4. **Natural water Fisheries Programs** **10%**
- 4.1 Importance of bio-limnological study
 - 4.2 Environmental factors and its effects to fish population
 - 4.3 Factors affecting survival and migration of fish
 - 4.4 Stock enhancement, biodiversity, conservation & management

Section C– 20 Marks

3. **Fish breeding techniques** **10%**
- 3.1 Site selection and design of a carp fish hatchery
 - 3.2 Brood fish management
 - 3.3 Criteria for brood fish selection
 - 3.4 Natural breeding
 - 3.5 Semi-artificial breeding
 - 3.6 Induced breeding
 - 3.7 Application of hormones in induced breeding
 - 3.8 Incubation techniques
 - 3.9 Endocrine system related to reproduction
 - 3.10 Fish Physiology
 - 3.10.1 Physiological systems and osmoregulation
 - 3.10.2 Function of different organ system (Digestive, Reproductive, Respiratory, etc.)

- 5. Fish Health Management** **10%**
- 5.1 Factors affecting fish health
 - 5.2 Identification of fish diseases and parasites
 - 5.3 Lab techniques
 - 5.4 Treatment procedures/ Control mechanisms

Section D– 30 Marks

- 6. Plan and policy** **10%**
- 6.1 Recent five years fisheries development plan
 - 6.2 Recent policies in fisheries development
 - 6.3 Present aquaculture status in Nepal
 - 6.4 Agriculture prospective plan
 - 6.3 Fisheries prospective plan

- 7. Aquaculture Extension** **10%**
- 7.1 Extension methodology, tools & communication systems
 - 7.2 Participatory approach in planning, implementation and monitoring
 - 7.3 Capacity building of farms and extension services
 - 7.4 Pocket package program
 - 7.5 Social mobilization, gender, integration and group dynamics
 - 7.6 Public, Private, NGOs, CBOs, Partnership, Contract- out program

- 8. Miscellaneous** **10%**
- 8.1 Fish Marketing, Aquaculture economics and credit support system
 - 8.2 जलचर संरक्षण ऐन, २०१७; तथा पशु स्वास्थ्य तथा पशु सेवा ऐन, २०५५ र नियमावली, २०५६

द्वितीयपत्रका पाठ्यक्रमका एकाईहरूबाट सोधिने प्रश्नहरूको संख्या निम्नानुसार हुनेछ :

द्वितीय पत्रका खण्ड	A			B			C			D		
द्वितीय पत्रका एकाई	1	2	4	3	5	6	7	8				
प्रश्न संख्या	3	1	1	1	1	1	1	1				

विषयगत नमूना प्रश्नहरू (Sample questions)

1. Define and elaborate about the aquaculture techniques which are adopted in Nepal.
2. Describe about the role of hormone in fish breeding and why we need induced breeding techniques?
3. What is the difference between inland aquaculture and capture fisheries? Describe management practice and procedure of production pond.
4. Illustrate and interpret the importance of water quality parameters for semi-intensive fish farming techniques?
5. What do you think about future potential in aquaculture development in Nepal? Describe your view in detail with reference to the fisheries prospective plan.
6. Describe in detail method of common carp breeding techniques in sequential order.