

SEMESTER I

PIZOA20 - INDEPENDENT ELECTIVE I A- PET KEEPING

Year	SEM	Course code	Title of the Course	Course Type	Course Category	H/W	Credits	Marks
I	I	PIZOA20	Pet Keeping	Theory	Independent Elective	-	2	100

Objective:

- To gain an extensive foundation for a career in the pet industry.
- To develop a career or business working with animals in breeding and supplying pets, or supplying services or products to pet owners.

Course Outcomes:

On completion of the course the student will be able to...

CO1: Analyze the present status of maintaining pets and its needs.

CO2: Interpret on varied dog breeds and train them.

CO3: Identify cat breeds and trace the diseased cat and treat them.

CO4: Expand knowledge on best choices of bird breed for business.

CO5: Elucidate commercially important fishes and understand the construction and requirement for setting aquarium to become an entrepreneur.

CO/PSO	PSO					
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	H	H	H	H	H	H
CO2	H	H	H	H	H	H
CO3	H	H	M	H	H	H
CO4	H	H	H	H	H	H
CO5	H	H	H	H	H	H

CO/PO	PO					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	H	H	M	H	H	H
CO2	H	H	H	H	H	H
CO3	H	H	H	H	M	H
CO4	H	H	H	H	H	H
CO5	H	H	H	H	H	H

Unit 1:

1.1: Animal care: laws and licenses. (K1, K2, K3, K4, K5)

1.2: Animal charities and societies (RSPCA, WSPA, Blue cross). (K1, K2, K3, K4, K5)

1.3: Pet trading. (K1, K2, K3, K4, K5)

1.4: Pet care needs -feeding, watering, shelter. (K1, K2, K3, K4, K5)

1.5: Containment, fencing, caging, and protection. (K1, K2, K3, K4, K5)

1.6: Maintaining health and hygiene. (K1, K2, K3, K4, K5)

Unit 2:

2.1: Dogs: Selection – breeds. (K1, K2, K3, K4, K5)

- 2.2: Training – positive reinforcement for puppies. (K1, K2, K3, K4, K5)
- 2.3: Adult training; Reappraise basic training; teaching old dogs new tricks. (K1, K2, K3, K4, K5)
- 2.4: Illness- first aid on spot diagnosis- vomiting and diarrhea, poisoning. (K1, K2, K3, K4, K5)
- 2.5: Cuts, grazes, wounds and burns. (K1, K2, K3, K4, K5)
- 2.6: Breaks and fractures; shock. (K1, K2, K3, K4, K5)

Unit 3:

- 3.1: Cat: Breeds (Lang Haired, semi long haired, short haired, oriental). (K1, K2, K3, K4, K5)
- 3.2: Allergies-containment. (K1, K2, K3, K4, K5)
- 3.3: Breeding. (K1, K2, K3, K4, K5)
- 3.4: New born Kittens. (K1, K2, K3, K4, K5)
- 3.5: Care for sick cat signs of illness, temperature. (K1, K2, K3, K4, K5)
- 3.6: Common ailments, skin disorders -ticks. (K1, K2, K3, K4, K5)

Unit 4:

- 4.1: Birds: Selection. (K1, K2, K3, K4, K5)
- 4.2: Breeds (canaries, finches, budgerigars, small parrots). (K1, K2, K3, K4, K5)
- 4.3: Containment -Aviaries, selection, design and size. (K1, K2, K3, K4, K5)
- 4.4: Management-feeding -watering- Grooming (Wing trim, beak trim, nail trim). (K1, K2, K3, K4, K5)
- 4.5: Caring for sick bird. (K1, K2, K3, K4, K5)
- 4.6: Signs of illness and common ailments. (K1, K2, K3, K4, K5)

Unit 5:

- 5.1: Selection - Types of fish -Tropical, Marine, Cold water. (K1, K2, K3, K4, K5)
- 5.2: Costs, size, Equipments. (K1, K2, K3, K4, K5)
- 5.3: Tanks, Ponds, pumps, aquarium, night lights. (K1, K2, K3, K4, K5)
- 5.4: Water quality - changing water. (K1, K2, K3, K4, K5)
- 5.5: Feed -pelleted, live feed. (K1, K2, K3, K4, K5)
- 5.6: Illness -fungal, bacterial parasites. (K1, K2, K3, K4, K5)

Books for Study and Reference:

Textbooks:

1. Shane Bateman, The First aid companion for dogs & cats published by Rodale books, 2001.
2. Alan Edwards, The ultimate Encyclopedia of cats, cat breeds & cat care; published by south water, 2012.

Reference Books:

3. Sheldon L. Gerstenfeld, V.M.D, The Bird Care Book, published by Da Capo Lifelong books, 1989.
4. David E. Boruchowitz, The simple Guide to freshwater Aquariums, published By TFH publications, inc. 2001.
5. Gary A Gallerstein, D.V.M . The complete Pet Bird owner's Handbook published by Avian Publications, 2003.

E-Resources:

- www.bluecrossofindia.org
- www.peta.org
- <https://www.britannica.com/animal/pet>

SEMESTER II

PIZOC20 - INDEPENDENT ELECTIVE II A-ANIMAL HUSBANDARY

Year	SEM	Course code	Title of the Course	Course Type	Course Category	H/W	Credits	Marks
I	II	PIZOC20	Animal Husbandry	Theory	Independent Elective	-	2	100

Objectives of the paper

- To know about the care and management of livestock.
- To learn the correct method of feeding, breeding, housing and health care of livestock.

Course Outcomes:

On completion of the course the student will be able to...

CO1: Explain the management of livestock.

CO2: Expand the knowledge to differentiate special breeds of cattle.

CO3: Elucidate different methods of breeding.

CO4: Summarize on the nutritive feeding practice of cattle.

CO5: Provide intensive ideas on management of cattle.

CO/PSO	PSO					
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	H	H	H	H	H	H
CO2	H	H	H	H	H	H
CO3	H	H	H	M	H	H
CO4	H	H	H	H	H	H
CO5	H	H	H	H	H	H

CO/PO	PO					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	H	H	H	H	H	H
CO2	H	H	H	H	H	H
CO3	H	H	H	H	H	H
CO4	H	H	H	H	H	H
CO5	H	M	H	H	H	H

Unit 1: Cattle Industry In South India

1.1: Cattle – importance, classification. (K1, K2, K3, K4, K5)

1.2: Population and food supply, suitable environment, rainfall and soil. (K1, K2, K3, K4, K5)

1.3: Suitability for tracts and farming types. (K1, K2, K3, K4, K5)

1.4: Grazing conditions, communal, fore stand private grazing. (K1, K2, K3, K4, K5)

1.5: Fodder cultivation. (K1, K2, K3, K4, K5)

1.6: Cattle rearing. (K1, K2, K3, K4, K5)

Unit 2: Important Breeds of Cattle In South India

2.1: Breed characters: Kangayam, Ogole. (K1, K2, K3, K4, K5)

2.2: Mysore and Alambadi breeds. (K1, K2, K3, K4, K5)

2.3: Barghur cattle, jelicut animals. (K1, K2, K3, K4, K5)

2.4: Tanjore polled cattle. (K1, K2, K3, K4, K5)

2.5: Buffaloes. (K1, K2, K3, K4, K5)

2.6: South Indian Breeds. (K1, K2, K3, K4, K5)

Unit 3: Methods of Breeding

3.1: In – breeding, line – breeding. (K1, K2, K3, K4, K5)

3.2: Out – crossing with other species and breeds. (K1, K2, K3, K4, K5)

3.3: Grading – up, selection – individuality. (K1, K2, K3, K4, K5)

3.4: Parentage, offspring influence. (K1, K2, K3, K4, K5)

3.5: Improvement of cattle in South India. (K1, K2, K3, K4, K5)

3.6: Hurdles in grading – up. (K1, K2, K3, K4, K5)

Unit 4: Principles of Feeding

4.1: Use of food, nutrients, nutritive ratio. (K1, K2, K3, K4, K5)

4.2: Starch equivalent, energy value, feeding standard. (K1, K2, K3, K4, K5)

4.3: Rations, roughages and concentrates. (K1, K2, K3, K4, K5)

4.4: Schedule of rations, some feeding hints. (K1, K2, K3, K4, K5)

4.5: Composition of feeding stuffs. (K1, K2, K3, K4, K5)

4.6: Digestibility coefficient of important feeds. (K1, K2, K3, K4, K5)

Unit 5: Management of Cattle

5.1: Housing, providing drinking water. (K1, K2, K3, K4, K5)

5.2: Grooming and washing. (K1, K2, K3, K4, K5)

5.3: Providing exercise. (K1, K2, K3, K4, K5)

5.4: Care of sick animals. (K1, K2, K3, K4, K5)

5.5: Vaccination. (K1, K2, K3, K4, K5)

5.6: Training young stock. (K1, K2, K3, K4, K5)

Books for Study and Reference:

Textbooks:

1. Animal Husbandry Department, Madras, Administration report for the year 1949 – 50.
2. Ind. Council of Agric., Res., New Delhi, Survey of cattle breeds in India, Bull., 24 (1934), 27 (1939) and 54 (1942).

Reference Books:

3. Kellner, C., The Scientific Feeding of Animals.
4. Maaynard, L.A., Animal Nutrition. New York, McGraw- Hill Book Company, 1947.
5. Pincher. C., The Breeding of farm Animals. Penguin Books, Ltd., Great Britain, 1946.
6. Sen. K.C., Cattle “Nutritive Value of Indian Feeds”, ICAR Miscellaneous Bull., No.23 (1952).

E-Resources:

<https://www.oercommons.org>

<https://www.dairyglobal.net>

<https://www.farmingindia.in/dairy-farming>

SEMESTER IV
PEZOG20 - ELECTIVE IV A: FISHERY BIOLOGY

Year	SEM	Course code	Title of the Course	Course Type	Course Category	H/W	Credits	Marks
II	IV	PEZOG20	Fishery Biology	Theory	Elective	5	5	100

Objective:

- The objective of the paper is to understand shell fisheries in India and to have knowledge about their byproducts, marketing, transportation and Insurance.

Course Outcomes:

On completion of the course the student will be able to...

CO1: Apply the parameters for the growth of fish, biology of fish and gears in fishery.

CO2: Acquire knowledge of biology and techniques of shell fisheries.

CO3: Apply knowledge in establishing and managing sea weed and pearl culture and byproducts of fishery.

CO4: Differentiate the types of fish cultures pathogens and their control measures.

CO5: Explain the processing, transportation and marketing of Fishes.

CO/PSO	PSO					
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	H	H	H	H	H	H
CO2	H	H	H	H	H	H
CO3	H	H	H	H	H	H
CO4	H	H	H	H	H	H
CO5	H	H	H	H	H	H

CO/PO	PO					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	H	H	H	H	H	H
CO2	H	H	H	H	H	H
CO3	H	H	H	H	H	H
CO4	H	H	H	H	H	H
CO5	H	H	H	H	H	H

Unit 1:(15 Hours)

- 1.1: Water quality-temperature, pH, CLO₂, salinity, nutrients and trace elements for the growth of fishes. (K1, K2, K3, K4, K5)
- 1.2: Biology of Marine edible fish - Oil sardines. (K1, K2, K3, K4, K5)
- 1.3: Biology of freshwater edible fish- Catla.(K1, K2, K3, K4, K5)
- 1.4: Indian capture methods – shafts.(K1, K2, K3, K4, K5)
- 1.5: Indaian capture gears.(K1, K2, K3, K4, K5)
- 1.6: Economic importance of commercial fisheries.(K1, K2, K3, K4, K5)

Unit 2:(15 Hours)

- 2.1: Biology and culture techniques of Shell fisheries.(K1, K2, K3, K4, K5)
- 2.2: Marine and freshwater Crustaceans- Prawns, Lobsters, Crabs. (K1, K2, K3, K4, K5)
- 2.3: Molluscs – Oysters. (K1, K2, K3, K4, K5)
- 2.4: Clams, Cuttle fish. (K1, K2, K3, K4, K5)

- 2.5: State wise Commercial and export potential of Shell fisheries.(K1, K2, K3, K4, K5)
2.6: Economic importance of Shell fisheries.(K1, K2, K3, K4, K5)

Unit 3: (15 Hours)

- 3.1: Sea weeds – Types.(K1, K2, K3, K4, K5)
3.2: Different culture methods of sea weeds.(K1, K2, K3, K4, K5)
3.3: Pearl culture - stages of pearl formations.(K1, K2, K3, K4, K5)
3.4: Pearl culture techniques.(K1, K2, K3, K4, K5, K6)
3.5: Byproducts of fishes - Fish meal – Fish oil.(K1, K2, K3, K4, K5)
3.6: Fish manure – Chunks.(K1, K2, K3, K4, K5)

Unit 4:(15 Hours)

- 4.1: Composite fish culture– Paddy cum fish culture.(K1, K2, K3, K4, K5)
4.2: Integrated fish culture. (K1, K2, K3, K4, K5)
4.3: Sewage water fish culture. (K1, K2, K3, K4, K5)
4.4: Raceway culture, cage, pen and rack culture system. (K1, K2, K3, K4, K5)
4.5: Control of Parasites, predators. (K1, K2, K3, K4, K5)
4.6: Weeds in culture ponds. (K1, K2, K3, K4, K5)

Unit 5:(15 Hours)

- 5.1: Methods of processing. (K1, K2, K3, K4, K5)
5.2: Packaging. (K1, K2, K3, K4, K5)
5.3: Storage of fishes. (K1, K2, K3, K4, K5)
5.4: Transport facilities. (K1, K2, K3, K4, K5)
5.5: Marketing channels. (K1, K2, K3, K4, K5)
5.6: E-marketing. (K1, K2, K3, K4, K5)

Books for Study and Reference:

Textbooks:

1. Jingran, V.G., 1982. Fish and fisheries of India. Hindustan publishing Corporation - New Delhi
2. Hopher, B and Y. Pruginin, 1981 - Commercial fish farming, John Wiley & Sons, N.Y.
Marine Products Export Review, 1982 MPEDA, Cochin.

Reference Books:

1. Pandey, K and J.P Shukla 2000. Fish and Fisheries, Rastogi Publication, Meerut.
2. Shanmugam, K. 2005. Fishery Biology and Aquaculture
3. PradeepKashyap. 2005. The Rural Marketing Book.

E-Resources:

<http://www.cifa.nic.in>

<http://agritech.tnau.ac.in>

<http://aquaculturetraining.com.au>

<http://www.oftri.org>

SEMESTER IV

PEZOH20 - ELECTIVE IV B: AQUACULTURE AND FARM MANAGEMENT

Year	SEM	Course code	Title of the Course	Course Type	Course Category	H/W	Credits	Marks
II	IV	PEZOH20	Aquaculture and Farm Management	Theory	Elective	5	5	100

Objective:

- To understand the culture practices of both fin fish and shell fishes.
- Gaining knowledge in the food and feeding habits, investigating the seed production and farm management and method of farming.

Course Outcomes:

On completion of the course the student will be able to...

CO1: Describe parameters of aquatic environment for aquaculture and farm management.

CO2: Elucidate biological criteria and economic significance of cultivable species.

CO3: Discuss seed production and hatchery management of commercially important cultivable fishes.

CO4: Explain different types of fish cultures techniques.

CO5: Analyse water quality parameters and biotechnological tools in disease diagnosis of culture fishes.

CO/PSO	PSO					
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	H	H	H	H	H	H
CO2	H	H	H	H	H	H
CO3	H	H	H	H	H	H
CO4	H	H	H	H	H	H
CO5	H	H	H	H	M	H

CO/PO	PO					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	H	H	H	H	H	H
CO2	H	H	H	H	H	H
CO3	H	H	H	H	H	H
CO4	H	H	H	H	M	H
CO5	H	H	H	H	H	H

Unit 1: Hours)

(15

1.1: Overview - Importance of aquaculture. (K1, K2, K3, K4, K5)

1.2: Global scenario. (K1, K2, K3, K4, K5)

1.3: Present status in India-prospects and scope.(K1, K2, K3, K4, K5)

1.4: Aquaculture Farms - Site selection, topography. (K1, K2, K3, K4, K5)

1.5: Water availability and supply, soil conditions and quality. (K1, K2, K3, K4, K5)

1.6: Design and layout, farm design, structure and construction. (K1, K2, K3, K4, K5)

Unit 2:(15 Hours)

- 2.1: Standard guidance for choosing cultivable species- seaweed, Crustacean (Prawns and Lobsters). (K1, K2, K3, K4, K5)
- 2.2: Molluscs (Clams, Cockles, Mussels and Oysters) and fishes-biological criteria. (K1, K2, K3, K4, K5)
- 2.3: Environmental adaptability and compatibility. (K1, K2, K3, K4, K5)
- 2.4: Adaptability to intensive culture. (K1, K2, K3, K4, K5)
- 2.5: Economic importance-economics, market values. (K1, K2, K3, K4, K5)
- 2.6: By products and availability in adjacent region. (K1, K2, K3, K4, K5)

Unit 3:(15 Hours)

- 3.1: Distribution and abundance of natural seed resources, collection methods and segregation. (K1, K2, K3, K4, K5)
- 3.2: Artificial seed production-breeding under controlled condition. (K1, K2, K3, K4, K5)
- 3.3: Induced breeding technique, larval rearing, packing and transportation. (K1, K2, K3, K4, K5)
- 3.4: Live feed - Microalgae, Rotifer and Artemia - their culture. (K1, K2, K3, K4, K5)
- 3.5: Feed formulation - conventional and non-conventional ingredients. (K1, K2, K3, K4, K5)
- 3.6: Feed additives, feed attractants and feed formulations. (K1, K2, K3, K4, K5)

Unit 4:(15 Hours)

- 4.1: Traditional, Extensive, Semi-intensive and intensive systems, composite fish culture. (K1, K2, K3, K4, K5)
- 4.2: Paddy-cum-fish culture. (K1, K2, K3, K4, K5)
- 4.3: Integrated fish culture, sewage water fish culture, raceway culture. (K1, K2, K3, K4, K5)
- 4.4: Cage, pen and rack culture system management. (K1, K2, K3, K4, K5)
- 4.5: Pond preparation. (K1, K2, K3, K4, K5)
- 4.6: Production and economics. (K1, K2, K3, K4, K5)

Unit 5:(15 Hours)

- 5.1: Water quality - temperature, Salinity, pH, O₂, CLO₂, levels, nutrients and trace elements (K1, K2, K3, K4, K5)
- 5.2: Control of parasites, predators. (K1, K2, K3, K4, K5)
- 5.3: Weeds and diseases in culture ponds. (K1, K2, K3, K4, K5)
- 5.4: Disease diagnosis-ELISA, Western blotting. (K1, K2, K3, K4, K5)
- 5.5: DNA based diagnosis of diseases. (K1, K2, K3, K4, K5)
- 5.6: Fish vaccines. (K1, K2, K3, K4, K5)

Books for Study and Reference:**Textbooks:**

1. Baluyut E.A., Aquaculture system and practices-A Selected Review Publishing House, New Delhi, 1989.
2. Dash M.C and Patnik. P.N.-Brackish water Culture-Palani Paramount Publications, Palani, 1994.

Reference Books:

3. Michael. B.N and Singholka B., Freshwater Prawn Farming: A Manual of Culture of Macrobrachium Rosenbergeee - Daya Publishing House, New Delhi, 1985.

4. Paul Raj S. Shrimp Farming Techniques: Problems and Solutions- Palani Paramount Publication, Palani, 1995.
5. Post G.M.- Textbook of fish Health - TFH Publication, 1983
6. Sinha, V.R.P and Srinivastava H.C. - Aquaculture Productivity-Oxford and IBH Publications Co. Ltd., New Delhi, 1991.

E-Resources:

<http://www.cifa.nic.in>

<http://agritech.tnau.ac.in>

<http://aquaculturetraining.com.au>

<http://www.oftri.org>

SEMESTER IV

PIZOI20 - INDEPENDENT ELECTIVE IVC- ANIMAL CARE

Year	SEM	Course code	Title of the Course	Course Type	Course Category	H/W	Credits	Marks
II	IV	PIZOI20	Animal Care	Theory	Independent Elective	-	2	100

Objective

- To impart special knowledge on animals and their relationship.
- To learn to examine sick animals, and understand how diagnostic procedures are applied for determining diseases.
- To learn about animal psychology; innate behaviour and survival.

Course Outcomes:

On completion of the course the student will be able to...

CO1: Expand knowledge on animal feeding.

CO2: Acquire knowledge on requirements for animal accommodation.

CO3: Recognize sick animals and diagnostic procedures to determine the disease.

CO4: Apply their knowledge in handling, restraining and transporting animals.

CO5: Explain animal psychology, innate behavior and survival.

CO/PO	PO					
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	H	H	H	H	H	H
CO2	H	H	H	H	H	H
CO3	H	H	H	H	H	H
CO4	H	H	H	H	H	H
CO5	H	H	H	H	H	H

CO/PO	PO					
	PO1	PO2	PO3	PO4	PO5	PLO6
CO1	H	H	H	H	M	H
CO2	H	H	H	H	M	H
CO3	H	H	H	H	M	H
CO4	H	H	H	H	M	H
CO5	H	H	H	H	M	H

Unit 1:

- 1.1: Animal Care- Scope. (K1, K2, K3, K4, K5)
- 1.2: Animal feeding: Types of feeder. (K1, K2, K3, K4, K5)
- 1.3: Nutritional requirements; vitamins, minerals. (K1, K2, K3, K4, K5)
- 1.4: Choosing and preparing food. (K1, K2, K3, K4, K5)
- 1.5: Quantity and timing of feeding. (K1, K2, K3, K4, K5)
- 1.6: Supplements. (K1, K2, K3, K4, K5)

Unit 2:

- 2.1: Animal accommodation. (K1, K2, K3, K4, K5)
- 2.2: Housing requirements. (K1, K2, K3, K4, K5)
- 2.3: Bedding materials. (K1, K2, K3, K4, K5)

- 2.4: Fixtures and fittings. (K1, K2, K3, K4, K5)
- 2.5: Cleaning and maintaining. (K1, K2, K3, K4, K5)
- 2.6: Waste disposal. (K1, K2, K3, K4, K5)

Unit 3:

- 3.1: Animal health: Disease prevention. (K1, K2, K3, K4, K5)
- 3.2: Common diseases of dogs, cats and rabbits. (K1, K2, K3, K4, K5)
- 3.3: Endoparasites and ectoparasites. (K1, K2, K3, K4, K5)
- 3.4: Signs of ill health. (K1, K2, K3, K4, K5)
- 3.5: First aid procedures. (K1, K2, K3, K4, K5)
- 3.6: Remedies. (K1, K2, K3, K4, K5)

Unit 4:

- 4.1: Handling, restraining and moving animals. (K1, K2, K3, K4, K5)
- 4.2: Need for handle, restrain and move animals. (K1, K2, K3, K4, K5)
- 4.3: Personal protective equipment. (K1, K2, K3, K4, K5)
- 4.4: Handling equipment. (K1, K2, K3, K4, K5)
- 4.5: Restraint equipment. (K1, K2, K3, K4, K5)
- 4.6: Reducing stress. (K1, K2, K3, K4, K5)

Unit 5:

- 5.1: Animal behaviour; Normal behaviour; Emotions. (K1, K2, K3, K4, K5)
- 5.2: Abnormal behaviour. (K1, K2, K3, K4, K5)
- 5.3: Stereotypic behaviour. (K1, K2, K3, K4, K5)
- 5.4: Observing behaviour; methods and recording. (K1, K2, K3, K4, K5)
- 5.5: Avoiding/ reducing abnormal behaviour. (K1, K2, K3, K4, K5)
- 5.6: Environmental enrichment. (K1, K2, K3, K4, K5)

Books for Study and Reference:

Textbooks:

1. Staff of ACS distance education. Animal feed and nutrition- ISBN NO: 979-0-9942948.
2. Dr. Pitcarins complete guide to natural health for dogs and cat. Published by Rodale books 2005.

Reference Books:

1. Carol Ekarius -Animal housing
2. Julie Massoni, Health pets naturally published in 2014
3. Martin Goldstein, The Nature of Animal Healing. Published by Ballantine books, 1999.
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