Chattogram Veterinary and Animal Sciences University
Faculty of Fisheries
Department of Aquaculture
MS in Aquaculture, Jan-June semester, Final Exam/2023
Course No & Title.: APE-501 (T); Aquafarm Planning and Engineering (Theory)
Full Marks: 40; Time: 2hours

Answer **any four (04)** from the following. Figure in the right margins indicates full marks. Splits answers is not acceptable.

1.	a.	Summarize the waste management strategy in aquaculture.	4
	b.	Illustrate the different methods for waste removal in aquaculture.	4
	c.	What are the different sources of waste from aquaculture?	2
2.	a.	What are the factors and principles associated with fish transportation?	5
	b.	Explain in details the different methods used for transporting of fish.	5
3.	a.	Discuss in details the problems encountered during selection of soils for design of ponds, canals and dams in aquaculture.	4
	b.	Write down the significance of drying during preparation of ponds?	2
	c.	For designing aquaculture systems what are the hydraulic aspects need to be considered?	4
4.	a.	Explain in details the features of a commercial fish pond.	4
	b.	List out the different types of ponds need to prepare for fish culture.	3
	c.	Briefly discuss the physical factors need to be consider for constructing a pond.	3
5.	a.	What are the factors need to follow for site selection for aquaculture?	6
	b.	Explain in details the marketing system of Fish.	4

Chattogram Veterinary and Animal Sciences University
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Department of Aquaculture
MS in Aquaculture, Jan-June semester, Final Exam/2023
Course No & Title.: AFA-501 (T); Advanced Freshwater Aquaculture (Theory)
Full Marks: 40; Time: 2hours

Answer **any four (04)** from the following. Figure in the right margins indicates full marks. Splits answers is not acceptable.

1.	a.	What do you mean by off-bottom culture?	1
	b.	Explain in details different types of off-bottom culture.	5
	c.	What are the species are suitable to culture in pen and list down the advantages and disadvantages of pen culture in Bangladesh	4
2.	a.	Write down the importance of Aquaponics. What are the components are essential for aquaponics.	5
	b.	Illustrate the advantages and disadvantages of biofloc system in aquaculture.	5
3.	a.	Summarize the significance and culture potentials of molluscs in Bangladesh.	5
	b.	Explain in details the different culture system of molluscs.	5
4.	a.	Explain the importance of prawn export in the economy of Bangladesh.	4
	b.	Write down in details the present status and culture techniques of prawn culture.	6
5.	a.	Write down the definition of the threatened species. What are the reasons behind the fish species being threatened.	5
	b.	Explain in details the advantages and disadvantage of different culture practiced to conserve the threatened fish species.	5

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Department of Aquaculture
MS in Aquaculture, Jan-June semester, Final Exam/2023
Course No & Title.: APH-501 (T); Aquatic Pharmacology (Theory)
Full Marks: 40; Time: 2hours

Answer **any four (04)** from the following. Figure in the right margins indicates full marks. Splits answers is not acceptable.

1.	a.	What are the sources of aqua drugs? Categorize aqua drugs available in Bangladesh based on their purpose of uses.	4
	b.	Explain in details methods of drug administration in fish including their advantages and disadvantages.	6
2.	a.	Briefly discuss the mode of action of antibiotics. Write down the management of antibacterial agent in aquaculture.	2
	b.	Enlist the recommendations of drug administration for the aquaculture industry.	6
	c.	Define pharmacodynamics.	2
3.	a.	Write down the characters of an ideal anesthetic. What is the purpose of using anesthetics?	3
	b.	Enlist commonly used anaesthetic agents in fish.	2
	c.	Why induced breeding is necessary for fish culture.	5
4.	a.	Write down the different purposes of aqua-drugs in Bangladesh.	4
	b.	Explain in details effect of drugs on aquatic environment.	6
5.	a.	What are the major phases of drug action? Explain in details the drug administration phase.	5
	b.	Write down different factors affecting drug effect and dosage in fish.	5

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MS in Aquaculture, Jan-June semester, Final Exam/2023
Course No & Title.: AHM-501 (T); Aquatic Animal Health Management (Theory)
Full Marks: 40; Time: 2hours

Answer **any four (04)** from the following. Figure in the right margins indicates full marks. Splits answers is not acceptable.

1.	a.	Enlist major bacterial diseases found in fish body.	2
	b.	Write down the clinical signs, symptoms, treatment and prevention of MAS and fish tuberculosis diseases of fish.	8
2.	a.	Summarize the symptoms, prevention and treatment of Viral Hemorrhagic Septicemia (VHS), Infectious Pancreatic Necrosis (IPN) and Spring Viremia of Carp diseases.	7
	b.	Write down the etiology, pathogenic sign and symptoms, clinical diagnosis and treatments of Saprolegniasis "Cotton Wool Disease" in fish.	3
3.	a.	Write down the importance of vaccination? Summarize the characteristics of an ideal fish vaccine.	2
	b.	Explain in details the different types of vaccines used in aquaculture.	3
	c.	Briefly discuss the different methods of vaccination in fish.	5
4.	a.	What do you mean by trans boundary aquatic animal diseases?	4
	b.	Write down the global guidelines on health management for the responsible movement of live aquatic animals	6
5.	a.	Categories traditional and commercial drugs and chemicals in disease treatment in Bangladesh.	5
	b.	Write down the Different Routes of Administration.	5

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Department of Aquaculture

MS in Aquaculture, Jan-June semester, Final Exam/2023

Course No & Title.: AQN-501 (T); Aquaculture Nutrition (Theory)

Full Marks: 40; Time: 2 hours

Answer **any four (04)** from the following. Figure in the right margins indicates full marks. Splits answers is not acceptable.

1.	a.	Define protein. Write down the properties of protein.	3
	b.	Write down in details the classification of protein.	3
	c.	Explain in details the protein synthesis in fish body.	4
2.	a.	Write down the structure of amino acids	2
	b.	Illustrate the metabolism of proteins and amino acids in fish body.	5
	c.	Classify amino acids based on chemical properties and nutritional requirements.	3
3.	a.	Dietary nutrient specifications for ornamental fish, catfish and carp. Write down the importance of lipids for fish culture.	2
	b.	Explain in details the lipid digestion steps in fish.	6
	c.	Summarized the dietary requirements of lipid in fish.	2
4.	a.	Generalized energy partitioning in fish.	2
	b.	Define specific dynamic action.	2
	c.	Explain in details the factors affecting the energy requirements of fish.	6
5.	a.	Write down the types and function of carbohydrate.	4
	b.	Summarize the digestion of carbohydrates in fish body.	6
6.	a.	Write down the role of brood stock nutrition on fish fecundity, fertilization of eggs and embryo development?	6
	b.	Explain in details the nutrition requirements for larvae rearing in aquaculture.	4

Chattogram Veterinary and Animal Sciences University
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MS in Aquaculture, Jan-June semester, Final Exam/2023
Course No & Title.: APA-501 (T); Aquatic Parasitology (Theory)
Full Marks: 40; Time: 2hours

Answer **any four (04)** from the following. Figure in the right margins indicates full marks. Splits answers is not acceptable.

1.	a.	Write down the importance and role of parasitology in fisheries science.	3
	b.	Life cycle of fish cestode.	7
2.		Discuss the causative agents, symptoms, pathological sign and prevention and control measure of following parasitic diseases. 1. Trichodiniasis disease 2. Argulosis disease	10
3.	a.	Illustrate different steps of whole mount of fish parasites.	6
	b.	Discuss mounting and preservation of parasites.	4
4.	a.	Define zoonosis. List out five major fish-borne zoonotic disease with causative agent.	4
	b.	Causative agent, disease transmission, clinical signs, laboratory diagnosis and treatment of *Clonorchiasis* diseases.	6
5.	a.	Classify parasites according to their habitat, their dependence on the host and pathogenicity.	4
	b.	Explain in details ecology of fish parasites.	6