

Exam 1
Aquaculture Production
January 4, 2012

Name: _____

Each question is worth 2 points except where labeled differently.

1. True or **False**: Even if the water quality is not the best, any water can be used and modified to meet the needs of the cultured species.
2. True or **False**: An investor has located a site for building an aquaculture farm that has plenty of water during the rainy season when he visited the site. He will fill his ponds through canals using the water from rain-fed springs. Based upon this site visit, he will have adequate water to produce fish throughout the year, harvesting a pond every 3 months.
3. True or **False**: A farmer wants to grow a fish and will be selling them to live markets in adjacent states. Because it is legal where he is growing it, he does not need any permits.
4. True or **False**: A farmer has a well with salinity of 4 ppt. He wants to grow a shrimp that grows well at 3-5 ppt salinity. Since his water is within the salinity range for culture, it will be adequate for shrimp culture.
5. What is the main aquatic species (or common name) grown in fresh water in Vietnam?
Tra catfish (Pangasianodon hypophthalmus).
6. Which aquatic species is the major one grown in salt water in Vietnam? **Shrimp (white and tiger)**
7. What are the two highest variable (operating) costs associated with aquaculture? **Feed and seed**
8. The price of tilapia based on fish prices sampled in the market during December was determined to be adequate for making a profit. What else should a potential investor evaluate?
 - a) Product form & size
 - b) Alternative products
 - c) Product seasonality
 - d) Pricing through year
 - e) **All of the above**
9. For encouraging photosynthesis, which component of alkalinity is important?
 - a) hydroxide
 - b) sodium
 - c) **bicarbonate**
 - d) calcium
 - e) magnesium
10. Lime should never be used at the same time that fertilizers are added, because it can:
 - a) Precipitate out calcium

- b) Remove alkalinity
 c) **Precipitate out phosphorus**
 d) Increase alkalinity
 e) Decrease pH
11. When removing inorganic turbidity, which of the following is the most effective?
 a) **alum** b) gypsum c) lime d) calcium chloride e) sodium chloride
12. Why is it important to measure alkalinity of water when evaluating a site for pond production for freshwater fish culture? Two reasons: **Low alkalinity can lead to problems with large fluctuations in pH, especially high pH levels, which can be very stressful and even lethal on fish. Very low alkalinity (<20 mg/L) can reduce nutrient (P) availability.**
13. True or **False**: An optimal fertilizer has a low C:N and small particle size. This is why organic fertilizers are the best type of fertilizer.
14. Liquid fertilizers should be:
 a) added directly by spreading evenly over the pond
 b) **diluted by adding fertilizer into 5-10 parts water before spreading over pond surface**
 c) added directly at one end of the pond
 d) diluted by adding 5-10 parts water to fertilizer and then added to one end of the pond
 e) diluted by adding 5-10 parts water to fertilizer and then spread evenly over the pond
15. (4 pts) How much cottonseed meal (41% protein) is needed to achieve 16 kg N/ha in a 1-ha pond
 a) 24.4 kg b) **244 kg** c) 39 kg d) 6.6 kg e) 66 kg
16. **True** or False: Cyanobacteria are associated with nutrient rich ponds with thermal stratification under stable conditions.
17. What are the two main pathways for removing ammonia in fish ponds? **bacteria and algae bloom (phytoplankton)**
18. A farmer wants to remove turbidity but does not have access to chemicals like alum. How much manure would you suggest using to remove inorganic turbidity?
 a) 20 kg/ha b) 100 kg/ha c) 200 kg/ha d) **1000 kg/ha** e) 2000 kg/ha
19. (5 pts) A farmer plans to sell tilapia weekly to the market and the market size is 100 mt/year. He has the following information and wants to know what size ponds to build?
- Average production 5,000 kg/ha
 - Cycle 12 months from 20 g fingerlings to 0.5 kg fish
 - Average survival 85%
 - Average FCR 2:1

