

國立嘉義大學九十七學年度 水生生物科學系碩士班招生考試試題

科目：專業英文

英翻中：

1. Bivalve mollusca rely on both cellular and humoral components that interact to protect against pathogens. The cellular component of marine bivalve immunity is mediated by haemocytes. Two basic types of hemocytes have been identified: hyalinocytes and granulocytes. They are involved in encapsulation and phagocytosis of foreign materials. They also contain hydrolytic enzymes and produce reactive oxygen species (ROS), which play a key role in pathogen degradation. The plasma contains various biologically active substances, including high molecular mass cytotoxic proteins and antimicrobial peptides. The latter, a cystein-rich peptides, display antibacterial and/or antifungal activities. (25%)
2. Hard clam, *Meretrix lusoria*, is an important marine culture species after oyster in Taiwan. The production of clam had reached to 23,466 tons in 2005. Clam is a filter-feeding organism living in sandy beaches. The suspension particles especially the microalgae are the major food source. The nutritional value varies with different microalgae species. It is believed that lipid composition of microalgae with more essential fatty acid (EPA) 20:5n-3 and (DHA) 22:6n-3 can increase the survival rate of bivalve. The microalgae *Isochrysis* and *Chaetoceros* contain polyunsaturated fatty acid had selected for live food in bivalve culture. (25%)
3. Aquaculture has to be recognized as a part of the natural environment and the different farming systems operate inside larger ecosystems, using available natural resources, including water supply, natural food and oxygen supply, and releasing harvested animals and also degraded resources. Folke and Kautsky (1992) described aquaculture as an economic subsystem of the overall ecosystem in which the existing ecosystem is used as a source for energy and farm inputs and additionally as a sink for the waste outputs. (25%)
4. An FAO report has predicted that 21st century expansion in global marine aquaculture is to be led by the same two ecologically sustainable crops, seaweeds and bivalves that today make up a major portion of mariculture production. Expansion of carnivorous fish and shrimp monoculture has already been facing multilevel difficulties, including environmental, socioeconomic and others, which have lead to reduced profitability. Ecologically balanced multi-trophic farming offers a way forward, turning monoculture waste into a resource. (25%)