

**AMERICAN UNIVERSITY OF BEIRUT  
FACULTY OF ARTS AND SCIENCES  
DEPARTMENT OF EDUCATION**

**Final Examination  
EDUC. 256 TEACHING SCIENCE II**

**Time: 2 hours**

**Date: Wednesday, June 11, 2008**

**Answer the following questions:**

**Question 1**

To: General Science Company  
Beirut, Lebanon

From: Food industries Ltd.  
Zahleh, Lebanon

Our quality control department is being moved to a different location and will not be able to handle any projects for a few weeks. It has come to our attention that General Science Company, Beirut, Lebanon has acquired an excellent reputation for its laboratory facilities and we would like you to conduct the following investigation for us:

The sales of our primary product "Delicious Popcorn" seems to be losing market share and a number of seemingly unknown brands are creating serious competition. Please, conduct the following research:

- 1) Determine the percent by mass water content of our brand and compare it to the competitors' brands.
- 2) Determine the kernel<sup>1</sup> density of each brand and relate it to water content.
- 3) Correlate the kernel size with density and water content.

Samples of our brand as well as the competitor's brands are included. We look forward to your test results and report.

The above document is an assignment that a secondary school science teacher gave to his students. Use the above document to answer the following questions:

- a. What type of lab activity can this assignment be considered? What are the characteristics of this type of lab? (15 points)
- b. What are the advantages and disadvantages for using such labs? (20 points).

**Question 2**

The following are roles that a teacher plays in preparing for or implementing cooperative learning lessons.

- a. Deciding on the size of the group (6 points).
- b. Structuring positive goal interdependence (12 points)
- c. Assigning roles to ensure interdependence (12 points)

Describe what the teacher has to do to accomplish each of these roles in a successful cooperative learning lesson.

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<sup>1</sup> Grain of corn

### Question 3

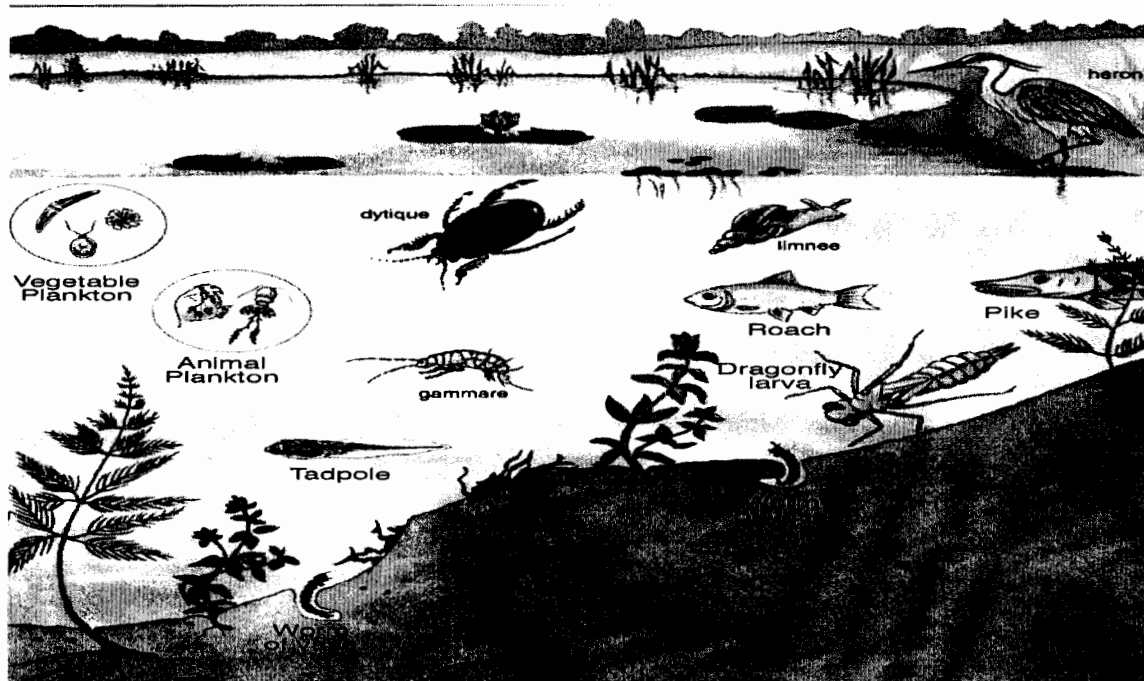
The Lebanese National Center for Educational Research and Development (NCERD) is in the process of developing a new evaluation system. The following is an example of the examination items that will be used in this new system. Study the item below carefully and then answer the following question:

- What are the advantages (17.5 points) and disadvantages (17.5 points) of using items similar to the one below in examinations? Justify your answers.

*An ecologist who studied the Ammick pond, located in the Bekaa in Lebanon, suggested that it was a real ecosystem as demonstrated in Document 1 below. He also identified a number of problems as indicted in document 2, which is an excerpt from one of the ecologist's reports.*

### Document 1

#### Animals that live in the Ammik pond



### Document 2

A layer of oil covers the surface of water and more often the temperature exceeded 35 C for ten days. One fears the disappearance of some animal and plant species of this ecosystem such as: the heron, reeds, plant plankton, tadpoles, animal plankton...

1. Identify the reasons of the ecologist fear concerning the maintenance of the natural balance and the effect on the food chain.
2. Refer to the documents 1 and 2 along with what you have studied in class, to justify the disappearance of each of the living things listed in document 1: The heron, reeds, plant plankton, tadpoles, animal plankton