

**CORK INSTITUTE OF TECHNOLOGY**  
**INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ**

**Semester 1 Examinations 2008/09**

**Module Title:     Applied Separation Technology**

**Module Code:        BIOM 8001**

**School:                Biological Sciences**

**Programme Title:**    Bachelor of Science (Honours) in Herbal Science – Stage 3  
                              Bachelor of Science (Honours) in Herbal Science – Award

**Programme Code:**   **SHERB\_8\_Y3**  
                              **SHERB\_8\_Y4**

**External Examiner(s):**    Prof. Liz Williamson, Dr. Dilis Clare  
**Internal Examiner(s):**    Germain Levieille

**Instructions:**            **Answer any 4 of the 6 questions asked. Each question carries a equal mark weighing of 25%. Please state clearly the questions addressed in your paper.**

**Duration:**            2 Hours

**Sitting:**                Winter 2008

**Requirements for this examination:**

**Note to Candidates:** Please check the Programme Title and the Module Title to ensure that you have received the correct examination paper.  
If in doubt please contact an Invigilator.

- Q1. Indicate the advantages and disadvantages and discuss the choice of methods available to separate plant debris from a macerate.
- Q2. Describe the principle guiding the particle separation using centrifugation. Give examples of centrifuges.
- Q3. Separations by reverse osmosis and by nanofiltration can be considered similar. Discuss the differences, similarities and relative advantages of these two methods.
- Q4. Detail the lyophilisation process of drying. How does it work and what are its application and limitations.
- Q5. What will be the factors you would investigate to optimise an HPLC separation of natural product. Illustrate the steps you would take to proceed in your optimisation.
- Q6. Give a definition to the following terms:
- (a) Feed
  - (b) Cross flow filtration
  - (c) Dialysis
  - (d) Membrane fouling
  - (e) Flocculation
  - (f) Distribution coefficient of solute