

OLLSCOIL NA hÉIREANN, GAILLIMH**SUMMER EXAMINATIONS 1999**

Denominated B.Sc.Degree in Marine Science, Third Year.

Marine Microbiology MR306

EXTERNAL EXAMINER Prof. J.Smith

INTERNAL EXAMINER Internal Examiners

TIME ALLOWED: **3 hours.**

ANSWER **FIVE** QUESTIONS

1. What are the main groups of phytoplankton that you might encounter in the sea. Briefly, point out when and where you would expect these groups to occur.
2. Outline in general terms the succession of types of phytoplankton throughout the year in a temperate shelf sea.
3. Measurements of phytoplankton biomass and inorganic nutrient (nitrate) were made daily through the Spring Bloom. It was found that the biomass continued to increase for four days after the nitrate concentrations had fallen to undetectable levels (effectively zero). Why ?
4. Describe the phytoplankton biomass distribution around a tidal front in summer.
5. Write short notes on **three** of the following:
 - a) Harmful algae
 - b) Methods of measuring primary production
 - c) What do heterotrophic bacteria in the water column feed on?
 - d) Any marine bacterial/invertebrate symbiosis of your choice.
6. Discuss the use of radiotracers for the study of marine microbial activity.
7. Write an essay on indigenous marine viruses and their influence on food web functioning.
8. What kind of microbially mediated processes would you expect to find in the benthos in inshore areas? how do they interact with the sediment environment?
9. Discuss the role of bacteria in the deep sea (below the euphotic zone)