

OLLSCOIL NA hÉIREANN
OLLSCOIL NA hÉIREANN, GAILLIMH
SUMMER EXAMINATIONS 1998
MR 405 FOURTH YEAR MARINE SCIENCE
CHEMISTRY MODULE

INTERN EXAMINER: Professor Michael J. Orren

EXTERN EXAMINER: Dr. P. Boaden

Time Allowed: 3 hours.

Answer any 5 questions

All questions carry equal marks

1. Write an essay on the chemical aspects of crude oil pollution, commenting on field technology and laboratory methodology.
2. Write detailed notes on the chemical relationships between carbon dioxide, ocean waters and global climate change.
3. Why is chemical pollution a particular problem in estuarine environments? Give an example.
4. "The concentration of metals in sea water is critical-too much and the amounts are toxic; too little and organisms decline." Comment on this statement. What alters the effective concentration of a metal species in the sea?
5. "Many of the most important chemical reactions occur at those interfaces where the ocean water meets sediments; the atmosphere, the 'biological membrane' of living matter; or the land/sea boundary". Discuss, with examples.
6. What factors would you bear in mind if you were to give consultant advice to a large multi-national chemical company on the possible siting of a pipeline to carry chemical wastes, and other factory wastes (e.g., domestic sewage from the site) into the sea?

OR

Give a detailed account of the distribution of, and reactions of, nitrogenous chemical species in the coastal ocean.

7. Write notes on chemical aspects of the marine photosynthetic process.