

NATIONAL UNIVERSITY OF IRELAND
GALWAY

OLLSCOIL NA hÉIREANN, GAILLIMH.

SEMESTER II, SUMMER EXAMINATIONS, 2000

BSc (Honours) Zoology (ZO401)

FIRST PAPER

Extern examiner : Professor G. Fava.

Time allowed : Three Hours
Answer three questions.

Section A.

1. Discuss the origin and adaptive radiation of birds.
2. Give an account of either the Pelecaniformes or the Procellariiformes.
3. Write a brief essay on seabird migration,
4. Discuss the effects that piscivorous birds can have on fish stocks.
5. Outline and discuss the different types of feeding methods used by seabirds.

Section B.

1. Discuss the structure and formation of the shells of bivalve molluscs.
2. Write a brief essay on feeding and digestion by bivalves.
3. Give an account of either bivalve osmoregulation or reproduction of freshwater bivalves.
4. Write a brief essay on the ecological and economic damage caused by zebra mussels and other non-indigenous freshwater bivalves in North America.
5. Discuss the potential use of freshwater bivalves as biomonitors of water pollution and other environmental perturbations.

Section C.

1. Compare the life cycle of *Crassostrea gigas* with that of *Ostrea edulis*. Give reasons why the former is now more widely cultivated in Ireland than the latter.
2. Write an essay on diseases in Aquaculture.
3. Discuss some of the factors which are important in the growth of oysters in Ireland. How important do you think the stock origin of the oyster is ?

4. What is meant by the term F_{st} ?

Eight oyster populations collected from three separate regions have the following allele frequencies :-

Region A	Region B	Region C
0.1	0.3	0.8
0.3	0.4	0.6
0.2		0.7

Calculate F_{st} for the data set and discuss your result.

5. Write notes on three of the following :-

Chordate characteristics
Natural Selection
Isometric and allometric growth
Heterochrony
The geological time scale
Evolution of the tetrapod limb

or

Write an essay on the influence of arboreal life on the evolution of man.

Section D.

With respect to the Echinoidea

1. Give a detailed account of the water vascular system.
2. Describe the alimentary canal.
3. Give an account of larval development.
4. Either describe the form and function of the haemal and perihemal systems *or* write concise notes on three of the following :
axial organ, pedicellariae, skeletal structure, the reproductive system.
5. Write an essay on the ecology of the group.