

OLLSCOIL NA hÉIREANN  
NATIONAL UNIVERSITY OF IRELAND, GALWAY

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**B.Sc. DENOMINATED DEGREE IN MARINE SCIENCE  
HONOURS**

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**SUMMER EXAMINATIONS 1998**

***Marine Zoology (MR 403)***

Prof. A. Eleftheriou  
&  
Internal Examiners

Time allowed: **3 hours**

Attempt **4 questions** from within one Section or between the Sections of your choice.

**Section A**

1. Give an account of the possible patterns and strategies of migrations in fishes.
2. Write an account of the mechanisms of swimming activity *or* buoyancy in fishes.
3. Write an account of some of the strategies and tactics of reproduction in fishes.
4. Feeding habits of fishes are diverse, and vary from simple to complex, depending on the morphological adaptations of the species involved. Discuss.
5. "An individual fish has biochemical, physiological, behavioural and morphological mechanisms which help buffer any adverse effects of a changing environment". Discuss.

*or*

Write an essay on the functions of shoaling behaviour in teleosts.

6. Describe in detail the acoustico-lateralis system in fish.

cntd./

### Section B

1. Discuss the importance of light reception and chemical reception in the feeding behaviour of demersal fish.
2. "The discarding of fish by commercial fishermen constitutes a waste of an important resource". Discuss.
3. Outline the advantages and limitations of the various ageing methods used in the analysis of fish populations.
4. Discuss the importance of fish migration in fisheries management.
5. Discuss the various reproductive strategies used by demersal fish species.
6. Describe how fish maintain their water and ion balance.

### Section C

1. Write a brief essay on the migration of eels.
2. Discuss the fishing and management of eels (*Anguilla anguilla*) in Ireland.
3. Discuss the factors that affect host specificity of fish parasites.
4. Discuss *either* the hierarchical organisation of parasite communities *or* the zoogeography of fish parasites.
5. Discuss the effects fish parasites can have on the host populations.

### Section D

1. Present an overview of the relationships and body plan of sea anemones.
2. "Sea anemones are polyphagous opportunists and include dissolved organic matter and particulate organic detritus in their diets". Discuss.
3. Write detailed notes on (a) respiratory gas exchange and (b) nitrogen excretion in sea anemones.
4. Give an account of reproduction in sea anemones.
5. Write an essay on the biotic interactions of sea anemones.

*or*

Write an essay on the ecology of sea anemones.

cntd./

### Section E

1. Describe the basic plan of organisation of the Polychaeta with particular reference to the phenomenon of metamerism.
2. Compare and contrast the feeding methods used by errant and sedentary polychaets
3. With respect to the Polychaeta write concise notes on the following:-  
(1) respiration ; (2) nephridia ; (3) nervous system
4. Provide a detailed description *either* sex and reproduction *or* embryological development in the Polychaeta.
5. Write an essay on the ecology of polychaetes.

### Section F

1. "The Phylum Echinodermata is one of the most distinctive in the animal kingdom". Defend this statement.

With reference to either the Ophiuroidea *or* the Echinoidea

2. Describe the form and function of the podium.
3. Write concise notes on two of the following:-  
(1) endoskeleton; (2) process of excretion ; (3) nervous system
4. Give an account of embryogeny and larval development.
5. Give an account of feeding and digestion.

*or*

Write an essay on the ecology of the Class.