

OLLSCOIL NA hÉIREANN**NATIONAL UNIVERSITY OF IRELAND, GALWAY**

SUMMER EXAMINATIONS, 1999

Fourth Year (Denominated B.Sc. Degree in Marine Science)**MR 403: Marine Zoology****Professor A. Eleftheriou
and the internal examiners****Time allowed: *Three hours.*****Answer *four* questions from within one Section or between the Sections of your choice.****SECTION A**

1. Discuss either the structure and role of the swimbladder in Teleosts or variation swimming mode and body form in the Teleosts .
2. Write a brief essay on the transatlantic migrations and estuarine movements of juvenile eels .
3. Outline and discuss the factors affecting downstream migrations of silver eels.
4. Discuss the effects of non-indigenous parasites on the European eel .
5. Write a brief essay on Ireland's eel industry .

SECTION B

1. Write an account of the temporal and spatial patterns of movement of fishes at different stages of their life cycle, and refer to the importance of fish migration to fishery management.

OR**Write an essay on the management of natural fish populations.**

2. Give an account of the factors that affect growth of fishes and describe the methods used in age and growth determination.
3. Write an account of the mechanisms of swimming activity of fishes.
4. Describe the methods of camouflage in pelagic marine fishes.

MR 403 Marine Zoology. (Ctd.)

5. Give an account of the motivational basis of fish behaviour.

OR

Discuss the symbiotic and other specific relationships established among fishes and between fishes and other organisms.

6. Fishes show a wide adaptive radiation in their feeding habits. Discuss.

SECTION C

1. Critically discuss the various methods used to age fish.
2. Write an account of and nutritional requirements of fish.
3. Write an essay on buoyancy in fish.
4. Describe in detail how fish swim.
5. Write an essay on respiration in fish.
6. Write an essay on diadromy in fish.

SECTION D

1. Critically outline what you consider to be the basic plan of echinoderm organisation.

With reference to the **Ophiuroidea**

2. Provide a detailed and illustrated account of the endoskeleton.
3. Write concise notes on **three** of the following:
 - (i) coelom;
 - (ii) respiration;
 - (iii) excretion;
 - (iv) nervous system

OR

Write an appreciation of the form and function of the watervascular system.

4. Give an illustrated account of embryogeny **OR** larval development.
5. Write an essay on the ecology of the Class.

MR 403 Marine Zoology. (Ctd.)

SECTION E

1. Write a critical appreciation of current views with respect to the phylogenetic relationships of the Phylum Mollusca.

With reference to the **Bivalvia**

2. Write an essay on the form and function of the shell.
3. Write concise notes on **three** of the following:

- (i) palp proboscides;
- (ii) the circulatory system;
- (iii) excretion;
- (iv) nervous system.

OR

Detail the filibranch - pseudolamellibranch - eulamellibranch progression in gill structure.

4. Provide a detailed account of the alimentary canal and digestion.
5. Write an essay on sex and reproduction OR larval development.

SECTION F

1. Give a critical appreciation of current views with respect to the phylogenetic relationships of the Phylum Annelida.

With reference to the Polychaeta :-

2. Critically outline what you consider to be the basic plan of polychaete organisation.
3. Write concise notes on three of the following:

- (i) coelomoducts;
- (ii) gas exchange/transport;
- (iii) nervous system;
- (iv) epitoky.

OR

Provide a detailed account of embryological OR larval development.

4. Write an appreciation of the close correlation between feeding methods and lifestyles.
5. Write an essay on the ecology of the Class.