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M.Sc. (Semester-II) Examination, July 2022

ZOOLOGY

(Fish Biology, Evolution and Functional Anatomy of Fish)

Time Allowed : Three Hours

Maximum Marks : 70
Minimum Passing Marks : 25

Note : This question paper is in four sections. All sections are **compulsory**. Attempt questions as per instructions given in each section. Distribution of marks is given in each section.

SECTION-A

(Objective Type Questions)

Note : Attempt **all the** questions of this section. Each question carries **1** mark. [1x10=10]

1. (i) 'Ampullac' of lorenzini are :

(a) Chemoreceptors

(b) Thermoreceptors

(c) Gustatoreceptors

(d) Mechanoreceptors

(ii) Who advocated the fresh water origin of fishes?

(a) Darwin

(b) Lamarck

(c) Macfarlane

(d) Nelson

(iii) The placoderms were the :

(a) Agnathans

(b) Cartilaginous fishes

(c) Ancient gnathostomes

(d) Bony fishes

(iv) Which of the following is the "Nile lung fish'?

(a) Neoceratodus

(b) Ceratodus

(c) Dipterus

(d) Protopterus

(v) Identify the edible fresh water teleost:

(a) Catla Catla

(b) Hilsa ilisha

(c) Rays and skates

(d) Sharks

(vi) Elasmobranchs remove sodium chloride through :

(a) Gills

(b) Kidney

(c) Liver

(d) Rectal glands

(vii) Bony armor fishes are :

(a) Placoderms

(b) Ostracoderms

(c) Elasmobranchs

(d) None of the above

(viii) Heart of fishes is called as :

(a) Sinus venosus

(b) Venous sinus

(c) Venous heart

(d) Vena cava

(ix) Exoskeleton of fishes are :

(a) Epidermal

(b) Ectodermal

(c) Dermal

(d) Bony

(x) Protopterus is :

(a) Australian lungfishes

(b) African lungfish

(c) American lungfish

(d) European lungfish

SECTION-B

(Very Short Answer Type Questions)

Note : Attempt **any five** questions. Each question carries **02** marks. Answer in about 25-30 words. [5x2=10]

2. (i) Photoreception

(ii) Osmoregulation

(iii) Teleostomi

(iv) Lepidosiren

(v) Homeostasis

(vi) Ammonotelism

(vii) Spermatogenesis

(viii) Fertilization

SECTION-C

(Short Answer Type Questions)

Note : Attempt **any five** questions. Each question carries **04** marks. Answer in about **250** words. [5x4=20]

3. Write short notes on the following:

(i) Fish biomodelling

(ii) Dipnoi

(iii) Fish barcoding

(iv) Chemoreception in fishes

(v) Schooling in fishes

(vi) Cell mediated immune defense in fishes

(vii) Fish leucocytes

(viii) Immune system in fishes

SECTION-D

(Essay Type Questions)

Note : Attempt **any three** questions. Each question carries **10** marks.(More than 500 words) : [3x10=30]

4. (i) Give an account of various methods employed in phylogenetic studies and fish identification.

   (ii) Describe the Swimming mechanisms and buoyancy regulation in fishes.

   (iii) Discuss the defense mechanisms in fishes.

   (iv) Describe the structure and function of piscine endocrine glands.

   (v) Write an essay on parental care in fishes.

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