401012

COMBINED COMPETITIVE EXAMINATION (MAIN)

ZOOLOGY

Paper–I

Time : 3 Hours *Full Marks* : 200

Note : *(1) The figures in the right-hand margin indicate full marks for the questions.*

*(2) Attempt **five** questions in all.*

(3) Question No. **1** *is compulsory.*

(4) Suitable diagrams may be drawn, whenever required.

1. Answer any ***ten*** questions from the following : 4×10=40

(a) Distinguish between plasmotomy and sporogony.

(b) What is detritus food chain?

(c) What is green gland? Write its function.

(d) Explain the locomotion of *Amoeba.*

(e) What is holozoic nutrition? Explain with example.

(f) Write the process of reproduction in *Euglena.*

(g) Mention the larval stages of *Fasciola hepatica.*

(h) Write the life cycle of hookworm.

(i) Distinguish between metabola and ametabola.

(j) Describe the locomotion of cuttlefish.

(k) Mention the larval forms of echinodermata and their general evolutionary significance.

(l) Write the characteristic features of cephalochordate.

2. Answer any ***eight*** questions from the following : 5×8=40

(a) Explain the phenomenon of polymorphism in Hydrozoa.

(b) Write the economic importance of sponges.

(c) Mention the processes of reproduction in *Hydra.*

(d) Explain the phenomenon of apolysis in *Taenia.*

(e) Distinguish between male and female of *Ascaris.*

(f) Describe the locomotory organs and mechanism of locomotion in *Nereis.*

(g) Mention the characteristic features of tongue worm.

(h) What are the unique features of Mollusca?

(i) Discuss the functions of ambulacral system in echinoderms.

(j) Why is *Sphenodon* significant in evolutionary point of view?

3. Answer any ***five*** questions from the following : 8×5=40

(a) Define aquaculture. Highlight the status of aquaculture in India.

(b) Explain the concept of ecosystem along with its components in detail.

(c) Discuss the probable evolutionary lineage for emergence of land vertebrates.

(d) What is dispersion? Write the measures of dispersion giving emphasis on standard deviation.

(e) Define national park. Discuss its ecological and economic significance with an example of national park from Northeast India.

(f) What is reflex? Explain the mechanism of reflex behaviour with experimental evidence.

(g) Describe the nervous system of *Pila globsa* with a suitable illustration.

4. Answer any ***four*** questions from the following : 10×4=40

(a) Define ecological climax. Explain the succession process in attaining it.

(b) Give an account of the helminth parasites in man.

(c) Explain the aquatic adaptation in mammals.

(d) Describe the major causes of water pollution.

(e) Define biodiversity. Write a note on biological diversity of Arunachal Pradesh in brief.

(f) What is IBCN? Discuss on conservation endeavours of bird in India.

5. Answer any ***two*** questions from the following : 20×2=40

(a) Give an account of respiration in Arthropods with suitable illustrations of typical respiratory organs in different groups.

(b) Discuss on neuroendocrine control of sexuality and reproductive behaviour in vertebrates.

(c) Describe the insects having beneficial role elaborating their economic implications as well as commercial uses for human welfare.

6. Answer any ***four*** questions from the following : 10×4=40

(a) Write the life cycle of a stored grain insect pest of rice with a note on its level of damage and control measure.

(b) Describe the locomotory organs and mechanism of locomotion in phylum Annelids with suitable illustrations.

(c) Write the morphology and life history of common jellyfish with appropriate illustrations.

(d) Explain the structural peculiarities of Prototheria and Metatheria with a note on their phylogenetic relationships.

(e) What is migration? Explain the causes of catadromous and anadromous migrations in fishes with suitable example.

(f) Describe the structural peculiarities of *Peripatus* with a note on its evolutionary significance.

7. Answer any ***two*** questions from the following : 20×2=40

(a) "Energy decreases in each successive trophic level" Explain the statement in detail.

(b) Describe the organisation in social life of termite and honey. Write a note on the significance of caste system.

(c) What is induced breeding fish? Explain the principle and write the techniques of induced breeding of Indian major carps through hypophysation.

8. Write short notes on the following : 10×4=40

(a) Matter and Biogeochemical cycle

(b) Ear ossicles in mammals and its evolutionary significance

(c) Peculiarities and affinities of Apoda

(d) Poison apparatus of snake

9. Discuss the following in detail : 10×4=40

(a) Parasitic helminths

(b) Fossil reptiles

(c) Origin of mammals

(d) Ecological succession

10. Answer the following questions in brief : 4×10=40

(a) Name two common stored grain pests of India. Briefly write the measure of controlling their infestation.

(b) Write the principle of composite fish culture in pond with suitable example.

(c) Write a brief note on abiotic factors and their role in the ecosystem.

(d) What is biological clock? Explain briefly with relevant example.

(e) Enlist the five major categories of primary air pollutants. With a suitable example, briefly discuss the interaction to form a secondary air pollutant.

(f) Define wildlife. Briefly mention the major threats for Indian wildlife.

(g) Explain why is standard deviation is called as the best measure of dispersion.

(h) Briefly explain the significance of food chain in ecosystem maintenance.

(i) Define animal behaviour. Mention the hormones involved with sexual behaviour of male and female vertebrates in general.

(j) Briefly explain the causes and impacts of eutrophication of water body.

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