

RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

SYLLABUS FOR COMPETITIVE EXAMINATION FOR THE POST OF LECTURER IN ZOOLOGY FOR COLLEGE EDUCATION DEPARTMENT

PAPER-I

- 1 **Taxonomy –**
 - (a) Principles and basis of classification.
 - (b) Binomial system of nomenclature.
 - (c) General survey of animal kingdom, classification upto order and inter-relationship of the various phyla.

- 2 **Diversity of Life Forms:** Structure and functions of the invertebrates from Protozoa to Echinodermata.
 - (a) Levels of structural organizations- Unicellular, colonial and multicellular forms, Coelom, segmentation and metamerism.
 - (b) Locomotory organs and their mechanisms.
 - (c) Food, feeding and digestion.
 - (d) Respiration.
 - (e) Excretory and osmoregulatory organs.
 - (f) Primitive and advanced nervous systems.
 - (g) Reproduction: Asexual, sexual and parthenogenesis.
 - (h) Larval forms.

- 3 **Structural organization of the following chordate types -**
 - (a) Protochordates, Balanoglossus, Herdmania, Branchiostoma.
 - (b) Chordates- Structure, classification and organization of vertebrates.
 - (c) Comparative anatomy of the integument, skeletal, digestive, respiratory, circulatory, urinogenital & nervous systems of vertebrates.
 - (d) Adaptation in vertebrates; Adaptations in fishes, amphibians, reptiles, birds and mammals.
 - (e) Economic importance of non-chordates and chordates.

- 4 **Developmental Biology:**
 - (a) Gametogenesis.
 - (b) Fertilization.
 - (c) Types of eggs cleavage and gastrulation, fate maps, metamorphosis in frog.
 - (d) Formation and fate of extra embryonic membranes in chick.
 - (e) Function and types of placenta in mammals.
 - (f) Sex differentiation in humans.
 - (g) Basic idea of regeneration, organogenesis and organisers.
 - (h) Cell differentiation and teratogenesis.

- 5 **Evolution:**
- (a) Origin of life; history of evolutionary thoughts.
 - (b) Lamarkism and Darwinism. Sources and nature of variations. Natural selection. Hardy-Weinberg law, cryptic and warning colouration, mimicry, isolation.
 - (c) Concept of species and sub-species.
 - (d) Fossils, outline of geological eras. Origin and evolution of man.
 - (e) Principles and theories of continental distribution of animals.
 - (f) Zoogeographical realms of the world.
- 6 **Animal Ecology:**
- (a) Population, interspecific and interaspecific relationships, competition, predation, parasitism, commensalism, co-operation and mutualism.
 - (b) Community ecology and succession, concept of ecosystem.
 - (c) Biogeochemical cycles. Limiting factors. Concepts of habitat and ecological niche.
 - (d) Major biomes and their communities.
 - (e) Pollution - its control and management. Bioremediation.
- 7 **Brain, Behavior and Evolution:**
- (a) Approaches and methods in study of behaviour.
 - (b) Proximate and ultimate causation, altruism and evolution-Group selection, kin selection, reciprocal altruism.
 - (c) Neural basis of learning, memory, cognition, sleep and arousal.
 - (d) Biological clocks, Development of behaviour, Social communication; Social dominance; Use of space and territoriality. Aggressive behaviour.
 - (e) Parental investment and Reproductive success; Parental care, Mating systems.
 - (f) Habitat selection and optimality in foraging; Migration, orientation and navigation; Domestication and behavioral changes.
- 8 **Wild life studies:**
- (a) Different types of biodiversity, conservation and major wild life sanctuaries in Rajasthan.
 - (b) Endangered species and wild life of Rajasthan.

Note :-

Pattern of Question Paper

1. Objective type paper
2. Maximum Marks : 75
3. Number of Questions : 150
4. Duration of Paper : Three Hours
5. All questions carry equal marks.
6. There will be Negative Marking.