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, Herdamania, 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.