



Ph.D. Entrance Examination 2017-18

Syllabus- Zoology

- Cell Biology- Intracellular organelles (prokaryotes and eukaryotes) mechanism of cell division, cell differentiation, cell-cell interaction, malignant growth, immune response, sex determination.
- Classification- Classification (chordata and non chordata) function and Analomy of non-chordate – protozoa, porifera, coelentrata, Annelida, Aschelhelminthes, Plathelminthes, Arthropoda, Echinodermata, Hemichordata , Chordata.
- Biochemistry- Nucleic acid structure, Genetic code, Replication, Transcription and translation, structure function and metabolism of (carbohydrate lipid and proteins) Enzymes and coenzyme, Respiration, Protein synthesis.
- Physiology- Internal Transport and Gas Exchange, Regulation of heart beat and blood pressure, Regulation of body P.H. osmoregulation, patterns of Nitrogen Excretion, Photoreception, chemoreception, mechanoreceptor, chromatophores, bioluminescence, feeding mechanism and their control. Muscle contraction, electric organs.
- Genetics- Principles of mendelian inheritance, chromosome structure and function, Gene structure, linkage, mutation, sex linked inheritance and genetic disorders.
- Evolutionary Biology- Origin of life, concepts of evolution, Natural selection, synthetic Theory, Hardy Weinberg equilibrium, Genetic drift, Evolution in Horse, adaptation.
- Statistics in Biological Research- Mean, Median, Mode, Standard deviation and Standard error, Probability, Analysis of variance, Histograms, T-test, correlation.
- Development Biology- Gametogeresis, fertilization, cleavage, placenta, extra embryonic membrane.
- Systematic- Application of Taxonomy, Modes of speciation, Level of Taxonomy.
- Ecology- Concept of Ecosystem, Population, Ecological succession.

Instruments- Principal and applications, Microscope, Incubator, Colorimeter, PH meter, BOD, centrifuge, Electrophoresis, Microtome, Chromatography.

Endocrinology- Endocrine glands, basic mechanism of hormone action, hormone and diseases, neuroendocrine, regulation.

Computational Biology- Parts Computer System, Windows Accessories, Computer language, operating system, CPU, input and output devices. MS Word, MS Power Point, MS Excel.

Research Methodology

Concept of Research- Definition, characteristics, objectives, Research and scientific method, Type of Research, Research process, Literature Review. Formulation of Hypothesis- (i) Sources of Hypothesis, (ii) Characteristics of Hypothesis, (iii) Role of Hypothesis, (iv) Test of Hypothesis Research Design, Sampling Design, Data Collection – (i) Observation method (ii) Interview method (iii) Case study method

Processing and Analysis of Data –
(i) Processing operations
(ii) Statistics in Research
(iii) Descriptive statistics
(iv) Inferential statistics
(v) Elements/ Type of Analysis

Interpretation of Data.
Criteria of Good Research.
Research Ethics.
Citation Methods.

Writing Research Report- Section of Report-Preliminary Section, Content Section, Supplementary Section.