

Syllabus for Sandip University Joint Entrance Exam(SU-JEE)

Exam Name – SU-JEE M.Sc. Zoology

Title	Syllabus	Questions
General Genetics	<p>Review of Mendelian & Non-Mendelian Inheritance: Mono / dihybrid inheritance, types of dominance, multiple allelism, Pleiotropy, epistasis, inheritance related to sex, probability and exercises for solving genetics problems</p> <p>Quantitative Genetics: Polygenic traits and mode of inheritance, analysis of variation: genetic and environmental factors, Heritability, Inbreeding and consequences, Co-efficient of inbreeding and consanguinity.</p> <p>Linkage and mapping in eukaryotes: Cytoplasmic inheritance:</p> <p>Microbial Genetics: Recombination in bacteria and gene mapping, Transformation, Conjugation, Transduction</p> <p>Population Genetics: Basic concepts, terminologies,</p>	20
Developmental Biology	<p>Basic concepts of Developmental Biology: Model systems: Fish, Frog, Chick, Mouse and Drosophila.</p> <p>Types of eggs and cleavage patterns: Concepts in Pattern formation, animal vegetal axis, gradients, origin and specification of germ layers. Cell–cell interaction and cell signaling: Cell –cell interaction and cell signaling during morphogenesis in early embryo; gastrulation, neurulation and primordial organ rudiments, Origin and fate of neural crest cells.</p> <p>Differentiation: Cellular basis of differentiation Stem cells and their role in development Growth and post embryonic development: Apoptosis, aging and senescence, abnormal development.</p>	30
Animal Physiology	Digestion: Physiology of digestion and absorption.	30

	<p>Blood pigments: Role in oxygen transport, Oxygen dissociation curves and their physiological significances, Transport of CO₂.</p> <p>Circulation:.</p> <p>Muscle contraction: reticulum and role of calcium in contraction.</p> <p>Osmotic regulation:, ionic regulation, hyper and hyposmotic regulators, ureosmotic animals.</p> <p>Excretion: Basic processes in urine formation, Renal function in animals “mammalian kidney”, Renal portal system.</p> <p>Chemical communication: Neuro-hemal and endocrine organs, chemistry of vertebrate hormones, Mechanism of hormone action.</p> <p>Sense organs: Classification of sense organs and their principles. Detailed mechanism of photoreaction, Types of reflexes and their functions, Principles of neural integration.</p>	
Cell Biology	<p>An overview of cell, cell shapes and types.</p> <p>Plasma membrane and cell surface: Structure, chemistry, receptors, transport, pinocytosis and phagocytosis, cell junctions, membrane potential and synaptic transmission, glycocalyx and cell wall.</p> <p>Mitochondria; Structure, function, protein import, Chloroplast – PS I and PS II system, water-splitting complex.</p> <p>Subcellular organelles : (a) The endoplasmic reticulum smooth and rough, (b) The Golgi complex, (c) Lysosomes, (d) Peroxisomes and glyoxysomes, (e) Nucleus</p> <p>Cell cycle: Phases of cell cycle, checkpoints of cell cycle, regulation of cell cycle</p>	20
Total		100