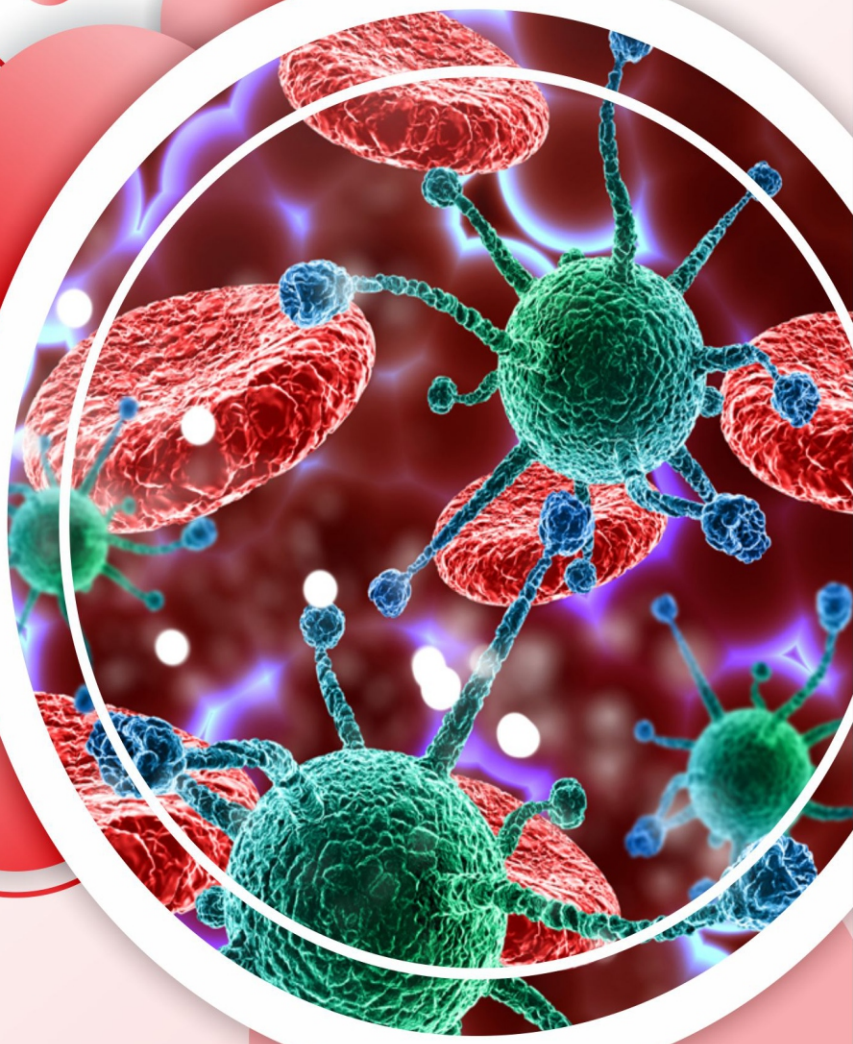
Level Up
– CUET –
An Institute for CUET Examination & Expert Guidance for CUET



CUET - 2023

BIOLOGY

1000+ QUESTIONS

BASED ON CUET PATTERN

MODE: ONLINE

Syllabus for Class 12

Note:
There will be one Question Paper which will have 50 questions out of which 40 questions need to attempted.

BIOLOGY/BIOLOGICAL STUDIES/BIOTECNOLOGY/BIOCHEMISTRY

Unit I: Reproduction

Reproduction in organisms: Reproduction, a characteristic feature of all organisms for continuation of species; Modes of reproduction – Asexual and sexual; Asexual reproduction; Modes - Binary fission, sporulation, budding, gemmule, fragmentation, vegetative propagation in plants.

Sexual reproduction in flowering plants: Flower structure; Development of male and female gametophytes; Pollination – types, agencies and examples; Outbreeding devices; Pollen – Pistil interaction; Double fertilization; Post fertilization events - Development of endosperm and embryo, Development of seed and formation of fruit; Special modes - apomixis, parthenocarpy, polyembryony; Significance of seed and fruit formation.

Human Reproduction: Male and female reproductive systems; Microscopic anatomy of testis and ovary; Gametogenesis – spermatogenesis & oogenesis; Menstrual cycle; Fertilisation, embryo development upto blastocyst formation, implantation; Pregnancy and placenta formation (Elementary idea); Parturition (Elementary idea); Lactation (Elementary idea).

Reproductive health: Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control - Need and Methods, Contraception and Medical Termination of Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (Elementary idea for general awareness).

Unit II: Genetics and Evolution

Heredity and variation: Mendelian Inheritance; Deviations from Mendelism – Incomplete dominance, Co-dominance, Multiple alleles and Inheritance of blood groups, Pleiotropy; Elementary idea of polygenic inheritance; Chromosome theory of inheritance; Chromosomes and genes; Sex determination – In humans, birds, honey bee; Linkage and crossing over; Sex linked inheritance Haemophilia, Colour blindness; Mendelian disorders in humans - Thalassemia; Chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

Molecular Basis of Inheritance: Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; Transcription, genetic code, translation; Gene expression and regulation – Lac Operon; Genome and human genome project; DNA fingerprinting.

Evolution: Origin of life; Biological evolution and evidences for biological evolution (Paleontological, comparative anatomy, embryology and molecular evidence); Darwin's contribution, Modern Synthetic theory of Evolution; Mechanism of evolution – Variation (Mutation and Recombination) and Natural Selection with examples, types of natural selection; Gene flow and genetic drift; Hardy-Weinberg's principle; Adaptive Radiation; Human evolution.

Unit III: Biology and Human Welfare

Health and Disease: Pathogens parasites causing human diseases (Malaria, Filariasis, Ascariasis, Typhoid, Pneumonia, common cold, amoebiasis, ring worm); Basic concepts of immunology – vaccines; Cancer, HIV and AIDs; Adolescence, drug and alcohol abuse.

Improvement in food production: Plant breeding, tissue culture, single cell protein, Biofortification; Apiculture and Animal husbandry.

Microbes in human welfare: In household food processing, industrial production, sewage treatment, energy generation and as biocontrol agents and biofertilizers.

Unit IV: Biotechnology and Its Applications

Principles and process of Biotechnology: Genetic engineering (Recombinant DNA technology).

Application of Biotechnology in health and agriculture: Human insulin and vaccine production, gene therapy; Genetically modified organisms: Bt crops; Transgenic Animals; Biosafety issues – Biopiracy and patents.

Unit V: Ecology and environment

Organisms and environment: Habitat and niche; Population and ecological adaptations; Population interactions – mutualism, competition, predation, parasitism; Population attributes – growth, birth rate and death rate, age distribution.

Ecosystems: Patterns, components, productivity and decomposition; Energy flow; Pyramids of number, biomass, energy; Nutrient cycling (carbon and phosphorous); Ecological succession; Ecological Services – Carbon fixation, pollination, oxygen release.

Biodiversity and its conservation: Concept of Biodiversity; Patterns of Biodiversity; Importance of Biodiversity; Loss of Biodiversity; Biodiversity conservation; Hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, National parks and sanctuaries.

Environmental issues: Air pollution and its control; Water pollution and its control; Agrochemicals and their effects; Solid waste management; Radioactive waste management; Greenhouse effect and global warming; Ozone depletion; Deforestation; Any three case studies as success stories addressing environmental issues.