

**Syllabus
for
Life Sciences (SCQP17)**

Note:

- i. *The Question Paper will have 75 questions.*
- ii. *All questions will be based on Subject-Specific Knowledge.*
- iii. *All questions are compulsory.*
- iv. *The Questions will be Bilingual (English/Hindi).*

Life Sciences (SCQP17)

- 1. Techniques:** Principles and applications of chromatography, spectroscopy, microscopy, electrophoresis, centrifugation, blotting, PCR & radioisotope techniques
- 2. Chromatin structure and function:** Organization of chromosomes in prokaryotes and eukaryotes, chromatin types, centromere, Telomere and concept of gene
- 3. Biochemistry:** Structure and functions of proteins, DNA, carbohydrates, lipids & vitamins. Bioenergetics, Glycolysis, TCA cycle, Electron Transport System and ATP synthesis, oxidation and synthesis of fatty acid, membrane structure and function
- 4. Biotechnology:** Recombinant DNA technology, principles of gene cloning, applications of biotechnology in medicine, industry and agriculture, animal & plant cell culture, environmental biotechnology
- 5. Microbiology:** Diversity of microbes, bacterial reproduction, antimicrobial agents, significance of microbes in the industry and agriculture, antigen, antibody, complement systems, immunity, vaccines, plant virus, animal virus and environmental microbiology.
- 6. Molecular Genetics:** Principles of inheritance, linkage & crossing over, chromosomal aberrations, extrachromosomal inheritance, replication, transcription, translation, DNA repair and population genetics
- 7. Plant Sciences:** Bryophytes, Pteridophytes, Gymnosperms, Angiosperms, Vascular system in plants, Economic important of plants, Photosynthesis, Photoperiodism, Vernalization, and Biogeochemical cycle
- 8. Animal Sciences:** Characteristics of invertebrates and vertebrates, anatomy and physiology of different system of humans, nerve impulse transmission, endocrinology, human diseases Apoptosis and cancer, inherited diseases, animal cell culture.