SYLLABUS

Life and Diversity from Protozoa to Porifera & Cell Biology – I

External Marks: 40
Internal Assessment : 10 **Time allotted : 3 Hours**

Note : Nine questions are to be set in all and the candidate are required to attempt five questions including compulsory question.

1. Question 1 is compulsory consisting of 10 parts (1.0 marks each) converting the entire syllabus. Answer to each part should not exceed 20 words.
2. Out of remaining eight, four questions are to be set from each section A & B, possibly splitting them in parts. Candidate is required to attempt four questions, two from each section

1. Protozoa:

i) General characters and classification up to order level
ii) Biodiversity and economic importance
iii) Type study of *Plasmodium;*
iv) Parasitic protozoans: Life history, mode of infection and pathogenecity of *Entamoeba, Trypanosoma, Leishmania* and *Giardia.*

2. Porifera:

i) General characters and classification up to order level
ii) Biodiversity and economic importance
iii) Type study – *Sycon*
iv) Canal system in sponges
v) Spicules in sponges

1. Ultrastructure of different cell organelles of animal cell.
2. **Plasma Membrane:** Fluid mosaic model, various modes of transport across the membrane, mechanism of active and passive transport, endocytosis and excytosis.
3. **Endoplasmic reticulum (ER) :** types, role of ER in protein synthesis and transportation in animal cell.
4. **Golgi complex:** Structure, Associated enzymes and role of golgi-complex in animal cell.
5. **Ribosomes**: Types, biogenesis and role in protein synthesis.
6. **Lysosomes:** Structure, enzyme and their role; polymorphism
7. **Mitochondria:** Mitochondrial DNA; as semiautonomous body, biogenesis, mitochondrial enzymes (only names), role of mitochondria.
8. **Cytoskeleton:** Microtubules, microfilaments, centriole and basal body.
9. Cilia and Flagella

10. 10.

SYLLABUS

Life and Diversity from Coelentrata to Helminths & Cell Biology – II

External Marks: 40
Internal Assessment : 10 **Time allotted : 3 Hours**

Note :

1. Nine questions are to be set in all and the candidate are required to attempt five questions including compulsory question.
2. Question 1 is compulsory consisting of 10 parts (1.0 marks each) converting the entire syllabus. Answer to each part should not exceed 20 words.
3. Out of remaining eight, four questions are to be set from each section A & B, possibly splitting them in parts. Candidate is required to attempt four questions, two from each section

1. Phylum – Coelentrata :

i) General characters and classification up to order level
ii) Biodiversity, economic importance
iii) Type Study - *Obelia*
iv) Corals and coral reefs
v) Polymorphism in Siphonophores

2. Phylum – Helminths :

i) General characters and classification up to order level
ii) Biodiversity, economic importance
iii) Type study – *Fasciola hepatica;*
iv) Helminths parasites : Brief account of life history, mode of infection and pathogenesity of *Schistosoma, Ancylostoma, Trichinella, Wuchereria* and *Oxyuris.*

1. Ultrastructure and functions of Nucleus : Nuclear membrane, nuclear lamina, nucleolus, fine structure of chromosomes, nucleosome concept and role of histones, euchromatin and heterochromatin, lampbrush chromosomes and polytene chromosomes.
2. Mitosis and Meiosis (Cell reproduction)
3. Brief account of causes of cancer.
4. An elementary idea of cellular basis of Immunity.