

**RKDF University Bhopal**  
**Syllabus for Ph.D. Entrance Test**

**Subject - Microbiology**

**Unit-I**

1. Morphology and ultra structure of bacteria: cell wall of eubacteria and archaebacteria.
2. Cell membrane: structure, composition and properties.
3. Antigenic properties, structure and function of capsule flagella cilia and Pilli.
4. Cultivation of bacteria: aerobic and anaerobic.
5. Bacterial growth: growth kinetic-growth rate and generation time; synchronous and continuous culture.

**Unit-II .**

1. General morphology and ultra structure of viruses: capsids – helical symmetry, icosahedral symmetry and complex symmetry. Viral genomes and its types Antigenic drift and Antigenic shift in Viruses
2. Viral related agents: viroids and prions.
3. Cultivation of viruses in embryonated eggs, experimental animals and cell culture: primary and secondary cell cultures, suspension cell cultures and monolayer cell cultures.
4. Serological methods: Haemagglutination, haemagglutination inhibition, complement fixation, IFA, ELISA, RIA.Purification of viruses.

**Unit-III**

1. General features classification & nomenclature of fungi. History of Mycology, occurrence, nutrition and growth of fungi.
2. Structure reproduction vegetative, asexual and sexual structure of fungi, Ecology of soil fungi (fungistasis, fungicidal, antagonism, symbiosis, synergismetc).
3. Mycosis, Keratinophylic and Dermatophylic fungi its Culture Cultivation and characterization.

**Unit-IV**

1. General characteristics immunity, occurrence, classification reproduction of protozoa.
2. protozoan diseases: Malaria, Amoebiasis, Toxoplasmsis, Leishmaniasis, Trypanosomiasis, Balantidium coli: their causative agents, sources, transmission, Laboratory diagnosis, prevention & control

**Unit-V**

1. Immune response: Innate immune mechanism, Defence barriers, Adaptive or Acquired Immunity, Anatomical organization of immune system:
2. Primary and Secondary lymphoid organs, Cells of immune system: Mononuclear cells and granulocytes, Antigen presenting cells(APC),T and B Cells and their subsets, NK cells and Dendritic cells.
3. Vaccine, its types and function.