

**GOVT. AUTONOMOUS COLLEGE, ROURKELA**

**PG DEPARTMENT OF BOTANY**

**QUESTION BANK**

***Paper -101 Title: MICROBIAL DIVERSITY***

**VIRUS**

**Short questions**

- How viruses can be detected by a rapid detection test?
- What is viroids?
- What is prion?
- Give some examples of –
  - SS RNA virus
  - SS DNA virus.
  - DS DNA Virus
  - DS RNA virus
- Who is called father of virology ?
- Why antibiotics have no effect on viruses ?
- Genetic material of TMV
- What does the latent infection mean?
- There are two major types of human immunodeficiency virus, HIV 1 and HIV 2. Which one of the two is mainly responsible for the disease.
- Bacteriophage
- TMV
- Structure of tobacco mosaic virus
- Plant viruses
- Transmission of plant viruses
- Cyanobacteria
- Biological importance of bacteriophages.
- Lytic and Lysogenic Cycle
- Write explanatory notes on the following –
  - Insect transmission of viruses
  - Cryptogram of TMV and an explanation of the terms used
- Discuss the structure of T2 viruses.
- Differentiate between virus and bacteria and explain the phenomenon of multiplication of virus.
- Transmission of plant virus by nematodes
- Viral detection through PCR
- Viral detection through ELISA

- Symmetric organizational morphology of viruses.

### **Long questions**

- Discuss the various systems of classification and nomenclature of viruses.
- List general symptoms of virus diseases of plants.
- Describe briefly the nature of plant viruses and the method of their transmission.
- How will you define virus? Discuss its nature and origin.
- Give an illustrated account of structure of viruses.
- How are the plant viruses transmitted? Give the control measures of any two-plant virus diseases.
- Describe the structure of TMV. How are viruses transmitted by insect vectors?
- Give an illustrated account of multiplication of plant viruses.
- Give an illustrated account of structure and life cycle of Bacteriophage.
- Virus is a link between living and non-living.” Justify this statement. Describe the viral transmission and diseases.”
- Mention some of the phanerogamic plant parasites with detailed description.
- Discuss in brief the structure and life cycle of T4 bacteriophage.

## **BACTERIA**

### **Long questions**

- Explain the various methods of reproduction found in Bacteria.
- Describe the ultra-structure of Tobacco Mosaic Virus (TMV).
- Describe the structure and economic importance of Bacteria.
- What are the viruses? How they reproduce?
- Write a note on Economic importance of Bacteria.
- Explain in detail sexual reproduction in Bacteria.
- Write a note on yellow vein mosaic of Bhendi.
- Give symptoms of: i) Citrus Canker, ii) Yellow vein mosaic of Bhendi.
- Give the ultra-structure of bacterial cell.
- Write a note on Binary Fission.
- Give an account of Lytic and Lysogenic cycle.
- Write a note on Budding and Binary fission.
- “Bacteria are both good and bad associates of human civilization”. Justify the statement.

## ALGAE

### Short Questions:

- What is epiphytic algae
- What is symbiotic algae
- The reserve food material in algae is -----
- The cell wall in algae is made up of-----
- Fusion between gametes of equal sizes is called -----
- Fusion between gametes of unequal sizes is called -----
- An alga growing on aquatic animal is called-----
- The algae growing in seawater is known as -----
- Name the reserve food material found in Rhodophyta.
- Name the reserve food material found in Cyanophyta.
- What is the reserve food material in brown algae.
- Name any two classes of algae in which motile cells are absent.
- What is the function of hold fast in *Ulothrix*?
- What is heterothallism?
- Differentiate Macro and Microzoospores in *Ulothrix*
- Differentiate aplanospores and Hypnospores
- Diatomaceous earth is obtained from -----
- Agar- agar is obtained from -----
- How vegetative reproduction take place in *Sargassum*?
- What is monoecious and dioecious?
- Distinguish primary and secondary laterals in *Sargassum*

### Long Questions:

- Give the general characters of algae.
- Describe the methods of vegetative reproduction in algae.
- Give the importance characters of Cyanophyta.
- Give the distinguishing features of Rhodophyta.
- Give the distinguishing characters of Euglenophyta.
- Sketch label and describe structure of cell in *Ulothrix*.
- Describe the various types of zoospores in *Ulothrix*.
- Give the classification with reasons of *Ulothrix*.
- Palmella stage in *Ulothrix*.
- Give the systematic position of *Sargassum*.
- Describe the process of fertilization in *Sargassum*
- Give the graphical life cycle of *Sargassum*.
- Describe the sex organs of *Sargassum*.
- 5. What are the functions of holdfast and air bladder of *Sargassum*.
- Explain the role of algae in petroleum and gas.
- Write note on Agar-agar and diatomite.
- Role of algae in space travel.
- Explain spoilage of water reservoir by algae.

- Describe the range of thallus in algae.
- Describe the methods of asexual reproduction in algae.
- Describe the methods of sexual reproduction in algae.
- Give the outline classification of algae upto classes as given by G.M.Smith with suitable example of each.
- Enlist the major divisions of algae as per G.M.Smith and give the distinguishing features of any one.
- Give the distinguishing features of Chlorophyceae and Phaeophyceae.
- Give the classification and external morphology of *Ulothrix*.
- Sketch, label and describe *Ulothrix* filament.
- Describe the various methods of asexual reproduction in *Ulothrix*.
- Draw a labelled diagram and describe external morphology of *Sargassum*.
- Sketch, label and describe T.S. of axis of *Sargassum*.
- Sketch label and describe female conceptacle of *Sargassum*.
- Sketch label and describe female conceptacle of *Sargassum*.
- Role of algae in agriculture and industry.
- Give the application of algae in food and medicine.
- Describe harmful effect of algae.

## **FUNGI**

### **Short Questions:**

- What is coenocytic Mycelium?
- What is obligate parasite?
- What is plasmogamy?
- The study of fungi is known as -----
- Reserve food material in fungi is-----
- Cell wall in fungi is made up of -----
- The mass of hyphae is known as -----
- Vegetative stage in Myxomycetes is called as-----
- Aseptate mycelium is found in class-----
- Septate mycelium is found in -----
- Ascocarp type of fruiting bodies are found in class-----
- Basidiomycetes produces -----type of fruiting bodies
- The fungi in which sexual reproduction is absent are classified in class-----
- The mycelium in ascomycetes is -----
- What are zoospores?
- Describe basidium
- Eucarpic thallus
- Holocarpic thallus
- Conidium
- Conidiophore
- Pustules of *Albugo*
- White rust

- Basipetal arrangement of sporangia
- Sporangiochore
- Oogamy in *Albugo*
- Zoospore in *Albugo*
- Hypertrophy
- *Albugo* belongs to class-----
- Female sex organ in *Albugo* is known as-----
- Sporangial arrangement in *Albugo* is -----succession
- White rust of crucifer is caused by-----
- All species of *Albugo* are -----
- In *Albugo* the structure which absorb food material from host is called-----
- Zoospores in *Albugo* are -----
- What are antibiotics?
- What is pathogen?
- Role of Fungi in cheese making
- Role of Fungi in bread making
- Enlist any two organic acids produced by fungi
- What is Mycorrhiza?
- Name any two enzymes produced by Fungi
- Penicillin is produced by-----
- *Aspergillus* is used for production of -----
- -----fungus is used in production of Alcohol
- Smut and rust diseases are caused by-----

### Long Questions:

- Describe thallus structure in Fungi.
- Explain Oogamous reproduction in Fungi.
- Explain gametangial copulation in Fungi.
- Describe Isogamy and Anisogamy in Fungi.
- Explain the role of fungi in fermentation industries.
- Explain symbiotic activities of fungi.
- Write a note on biodeterioration due to fungi.
- Explain role of fungi in plant diseases.
- Explain role of fungi in human and animal diseases.
- Write a note on “fungi as food”.
- Give the characters of Deuteromycetes
- Give the characters of Phycomycetes
- Give the characters of Myxomycetes
- Give the characters of Ascomycetes
- Give the graphic representation of life cycle of *Albugo*.
- Describe V.S. of leaf passing through sorus in *Albugo*.
- Explain fertilization in *Albugo*.
- Describe oogonium in *Albugo*.
- Sketch, label and describe antheridium of *Albugo*.

- Describe structure of hypha in *Albugo*.
- Describe the general characters of Fungi?
- Describe the methods of reproduction in Fungi
- What are Fungi? Give the habit and habitat of Fungi.
- Describe the modes of nutrition in Fungi.
- Give the economic importance of fungi with respect to agriculture and food.
- Give the applications of fungi in Industries and Medicine.
- Describe the harmful activities of fungi.
- Give outline classification of fungi as per G.M.Smith upto classes giving example of each class.
- Differentiate class Phycomycetes and Ascomycetes.
- Differentiate Div.-Myxomycophyta and Eumycophyta.
- Describe the general characters of Basidiomycetes.
- Give systematic position and symptoms of white rust caused by *Albugo*.
- Describe the asexual reproduction in *Albugo*.
- Describe the sexual reproduction in *Albugo*.
- With the help of labeled diagrams describe germination of oospore in *Albugo*.
- Draw, label and describe sex organs in *Albugo*.