

I B.Sc - BOTANY SYLLABUS PAPER-I; SEMESTER - I**Paper- I: Fundamentals of Microbes and Non-vascular Plants
(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)****Unit – 1: Origin of life and Viruses****10 Marks Questions**

1. Write about Five Kingdom Classification of R.H. Whittaker.
2. Explain about structure and multiplication of TMV.
3. Write a about plant diseases caused by Viruses; Transmission of plant viruses and their control.
4. Write about Significance of viruses in vaccine production, bio-pesticides and as cloning vectors.

5 Marks Questions

1. Abiogenesis
2. Miller and Urey experiment
3. Pasteur experiments
4. Germ theory of diseases
5. Shape and symmetry of viruses
6. Structure of TMV
7. Structure of Gemini virus
8. Prions and Viroids

2 Marks Questions

1. What is called abiogenesis?
2. Discuss the chemical evolution of life
3. Primitive atmosphere of earth contain mixture
4. Kingdom Monera characters
5. Define Prions
6. Difference between Viroids, Prions
7. Differences between lytic and lysogenic cycles
8. Chlorosis
9. Chemical nature of viruses
10. Seed transmission of viral disease

Unit –2: Special groups of Bacteria and Eubacteria**10 Marks Questions**

1. Describe the cell structure of Eubacteria. (Bacteria)
2. Write about bacterial recombination methods (Bacteria - Sexual reproduction methods)
3. Write about Economic importance of Bacteria
4. Write about a general account on symptoms of plant diseases caused by Bacteria.

5 Marks Questions

1. Archaeobacteria
2. Actinomycetes
3. Cyanobacteria
4. Cell structure of bacteria
5. Nutrition of Bacteria
6. Bacteria - Binary fission
7. Bacteria - Endospore
8. Bacteria - Conjugation
09. Bacteria - Transformation
10. Bacteria - Transduction
11. Citrus canker

2 Marks Questions

1. What are pleomorphic bacteria
2. what is capsule, mention its functions
3. What is slime layer, mention its functions
4. Define nucleiod
5. What is sex pilus what is its function
6. What is mesosome
7. What is plasmid its significance
8. Write briefly about endospores
9. Which organisms are referred to as scavengers of nature and why
10. Which bacteria produce gobar gas and how
11. Define botulism name the bacterium responsible for botulism

12. Define nitrifying bacteria give two examples.

Unit – 3: Fungi & Lichens

10 Marks Questions

1. Write about Ainsworth classification of Fungi.
2. Write about *Rhizopus* structure and reproduction.
3. Write about *Puccinia* structure and reproduction.
4. Economic uses of fungi in food industry, pharmacy and agriculture.
5. Write a general account on symptoms of plant diseases caused by Fungi
6. Write about Lichens structure and reproduction.
7. Write about Ecological and Economic Importance of Lichens.

5 Marks Questions

1. General characters of Fungi
2. Structure of *Rhizopus* mycelium
3. *Rhizopus* - Asexual reproduction
4. *Rhizopus* - Sexual reproduction
5. *Puccinia* - Uredinial stage (Urediniospores)
6. *Puccinia* - Telial stage (Teliospores)
7. *Puccinia* - Basidiospores
8. *Puccinia* - Spermogonium stage (Pycnidium)
9. *Puccinia* - Aecial cups (Aeciospores)
10. Blast of Rice

2 Marks Questions

1. Define obligate parasites, facultative saprophytes
2. Define mycorrhiza
3. Define Acervulus
4. Define Cleistothecium
5. Define Plasmogamy
6. Define Dikaryotization
7. Heterothallism in fungi
8. Coenocytic hyphae
9. What is heterocious rust?
10. Crustose lichens
11. Define soredium
12. Fruticose lichens

Unit – 4: Algae

10 Marks Questions

1. Write about General characteristics of Algae.
2. Write about classification of Algae. (F.E.Fritsch Classification of Algae)
3. Write about thallus organization in Algae.
4. Write about structure and reproduction of *Oedogonium*. (Life cycle of *Oedogonium*)
5. Write about structure and reproduction of *Polysiphonia*. (Life cycle of *Polysiphonia*)
6. Write an essay on economic importance of algae.

5 Marks Questions

1. Pigments in Algae
2. Algae - reserve food materials
3. Structure of *Oedogonium* thallus
4. *Oedogonium* – Nannandrous form
5. *Oedogonium* – Cell Division
6. Structure of *Polysiphonia* Thallus
7. *Polysiphonia* - Cystocarp (Carposporophyte)
8. *Polysiphonia* - Tetrasporophyte

2 Marks Questions

1. Define phytoplankton
 2. Xanthophylls pigments
 3. Define Coenobium
 4. Define akinetes
 5. Define Anisogamy
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6. Define Trichoblasts

7. Agar-Agar

Unit - 5: Bryophyta

10 Marks Questions

1. Describe the external and internal structure of *Marchantia* thallus.
2. Write about Sexual Reproduction in *Marchantia*
3. Describe the structure of *Marchantia* sporophyte.
4. Describe the internal structure of *Funaria* capsule. (*Funaria* - sporophyte)
5. Write an essay on evolution of Sporophyte in Bryophytes

5 Marks Questions

1. General characters of Bryophytes
2. *Marchantia* thallus
3. Internal structure of *Marchantia* thallus
4. *Marchantia* - Gemma cup
5. *Marchantia* - Antheridiophore
6. *Marchantia* - archegoniophore
7. *Funaria* Plant (*Funaria* - gametophore)
8. *Funaria* - Antheridial branch
9. *Funaria* - Archegonial branch
10. *Funaria* - Protonema

2 Marks Questions

1. Amphibians of the plant kingdom
2. Define alternation of generations
3. Define liverworts, mosses
4. Gemmae
5. Write difference between perigynium, perichaetium
6. Define elaters, pseudoelaters
7. Define peristomial teeth
8. Significance of protonema
9. Difference between paraphyses, apophysis.

Paper- III: ANATOMY AND EMBRYOLOGY OF ANGIOSPERMS, PLANT ECOLOGY AND BIODIVERSITY**Unit – 1: Anatomy of Angiosperms****10 Marks Questions**

1. Describe various theories relating to the shoot apex.
2. Describe the process of anomalous secondary growth in the stem of Boerhavia
3. Describe the anomalous secondary growth in the stem of Dracaena.
4. Write an essay on the general account of timer and its economic importance.
5. Give the details of organisation of apical meristems in angiosperms.

5 Marks Questions

1. Histogen theory
2. Tunica-carpus theory
3. Identification characters of wood of Teak
4. Wood of Rose wood
5. Wood of Redsanders

Unit –2: Embryology of Angiosperms**10 Marks Questions**

1. Describe the Anther structure.
2. Give an account of Microsporogenesis & Types of Pollen tetrads.
3. Describe the structure of ovule and megasporogenesis
4. Describe the development of monosporic type of Embryosac.
5. Describe the development of bisporic and tetrasporic types of Embryosacs.
6. Give an account of the structure of mature embryo sac in angiosperms.
7. Describe the different types of Endosperms structure & development.
8. Describe the development of embryo in dicotyledons.

5 Marks Questions

1. Anther wall.
2. Tapetum.
3. Pollen tetrads.
4. Microsporogenesis.
5. Cytokinesis in microsporgensis.
6. Types of ovules.
7. Nucellus.
8. Megasporogenesis.
9. Explain the Egg apparatus.
10. Nuclear endosperm.
11. Cellular endosperm.
12. Helobial endosperm.
13. Ruminant endosperm.
14. Based on the development various types of embryos.

Unit – 3: Basics of Ecology**10 Marks Questions**

1. Give an account of basic concepts of Ecology.
2. Describe the different components of an ecosystem.
3. What are ecological pyramids? Describe the pyramids of numbers, biomass and energy.
4. Give an account of energy flow in ecosystem.
5. Describe the role of light as an ecological factor.

6. Explain the effect of Temperature factor on vegetation.
7. Write about the effect of Temperature on plants.
8. Write the process of soil formation.
9. Discuss briefly the different components of soil.
10. Write the physical & chemical properties of soil.
11. Describe the effect of biotic factors on vegetation.
12. What is plant succession? Describe Xerosere.
13. Describe the Hydrosere type of succession.

5.Marks Questions

1. Trophic levels.
2. Food chain.
3. Food web.
4. Detritus food chain.
5. Pyramid of Number.
6. Light effect on photoperiodism.
7. Heat tolerating capacity of plants,
8. Soil profile.
9. Write the different types of soil water.
10. Explain about the mutualism.
11. Explain the Amensalism.
12. Climax community.
13. Reed – swamp stage.
14. Sedge-Meadow stage.
15. Climax stage in Hydrosere.
16. Moss stage in xerosere.

Unit – 4: Population, community and Production Ecology

10 Marks Questions

1. Define Population? Discuss the various characteristics of population.
2. Write the different types growth curves in population.
3. Describe different characteristics shown by plant communities.
4. Describe the different methods for measuring the primary productivity of an ecosystem.
5. Write about different methods for measuring the secondary productivity of an ecosystem.

5 Marks Questions

1. Mortality and Natalty
2. Sigmoidal growth curve.
3. Different types of Ecotypes.
4. Abundance and Life-forms.
5. Density and Frequency.
6. NPP. GPP
7. P/R Ratio.
8. Primary productivity measurement by Oxygen measurement method.

Unit - 5: Basics of Biodiversity

10 Marks Questions

1. Write about different levels of Biodiversity.
 2. Write about the different values of Biodiversity.
 3. Explain the Threats to Biodiversity.
 4. Write an essay on Biodiversity Hot Spots.
 5. Describe the Hot Spots of Biodiversity in India.
 6. Write an essay about the principles of conservation of Biodiversity.
 7. In- situ conservation of Biodiversity.
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8. Ex- Situ conservation of Biodiversity.
9. International efforts for conserving Biodiversity.
10. Write about the IUCN threat categories.

5.Marks Questions

1. Explain the Genetic diversity.
2. Species diversity.
3. Over exploitation.
4. Ethical & Aesthetic values.
5. Hot Spots in North Eastern Himalayas.
6. Hot Spots in Western Ghats.
7. Biosphere Reserves.
8. Contribution of IUCN.
9. Red – Data Book.
10. Protected areas.

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