

TIME ALLOWED: THREE HOURS

NOTE: Attempt Any FIVE Questions in All.

**Q No. 1:** a) Describe the classification of Algae. Give examples of each algal group.  
 b) Give an account of general features of Cyanophyta. Discuss the ecological importance of blue green algae. **(10 + 10 Marks)**

**Q No. 2:** a) Write down the means of reproduction in fungi.  
 b) Briefly explain the economic impact of Rust and Smut diseases on major agricultural crops in Pakistan. **(12 + 8 Marks)**

**Q No. 3:** a) Differentiate between the sporophytes of liverworts and hornworts.  
 b) Describe sexual reproduction in Marchantia. **(10 + 10 Marks)**

**Q No. 4:** a) Explain the phenomenon of Alternation of Generation in Pteridophytes. What is its significance?  
 b) Discuss the process of evolution of seed habit in land plants. **(12 + 8 Marks)**

**Q No. 5:** a) Cycas is a living fossil. Discuss.  
 b) Write down the internal structure of leaf of Pinus. What is its ecological importance? **(10+ 10 Marks)**

**Q No. 6:** a) Discuss the Rules of International Codes of Botanical Nomenclature.  
 b) Describe abnormal secondary growth in higher plants. **(12 + 8 Marks)**

**Q No. 7:** a) Give the outline of Engler and Prantl's system of classification. What are its merits and demerits?  
 b) Discuss the anatomical modification in ecologically different plants. **(12 + 8 Marks)**

(02)

Q No. 8:

**Differentiate:-**

(5x4=20 Marks)

- a) Chemotaxonomy and Biosystematics
- b) Collenchyma and Sclerenchyma
- c) Botanic Garden and Herbarium
- d) Heterospory and Homospory
- e) Bacillariophyta and Chlorophyta

Q No. 9:

**Write short notes on the following:-**

(4x5=20 Marks)

- a) Anatomy of Root
- b) Apomixis and Polyembryony
- c) Flower, a Modified Shoot
- d) Stele and its Types