

**PUNJAB PUBLIC SERVICE COMMISSION**  
**COMBINED COMPETITIVE EXAMINATION FOR**  
**RECRUITMENT TO THE POSTS OF**  
**PROVINCIAL MANAGEMENT SERVICE -2019**

**SUBJECT: BOTANY (PAPER-I)**

**TIME ALLOWED: THREE HOURS**

**MAXIMUM MARKS: 100**

**NOTE: Attempt FIVE Questions in All. Attempt in Urdu or English.**

- Q. No. 1:** a) Write on distribution and life history of Rhodophyta.  
b) Give Economic importance of Algae. (10+10=20 Marks)
- Q. No. 2:** a) How does the sporophyte and Gametophyte of Moss plant differ from that of a Liverwort?  
b) Give general account of Bryophytes. (10+10=20 Marks)
- Q. No. 3:** a) Describe modern system of plant classification, with its basis.  
b) Write a note on alpine and boreal forests. (10+10=20 Marks)
- Q. No. 4:** a) Describe the changes which enabled the green plants to inhabit dry land environment.  
b) How was seed evolved in land plants? (10+10=20 Marks)
- Q. No. 5:** Write short notes on the following: (4x5=20 Marks)  
a) Double Fertilization b) Meristematic tissue  
c) Systematics d) Ovule types in Angiosperms
- Q. No. 6:** a) Explain evolutionary tendencies of Gymnosperms with examples.  
b) How does Cycas differ from Pinus? (10 + 10=20 Marks)
- Q. No. 7:** a) Describe the development of male and female Gametophyte in Angiosperms.  
b) Describe the structure of Xylem in Angiospermic Plants. (10 + 10=20 Marks)
- Q. No. 8:** Differentiate between the following: (4x5=20 Marks)  
i. Chlorophyta and Rhodophyta  
ii. Spore and Gamete  
iii. Oospore and Zoospore  
iv. Prokaryotes and Eukaryotes