

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

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SUBJECT: BOTANY (PAPER-II)

TIME ALLOWED: THREE HOURS

MAXIMUM MARKS: 100

NOTE: **Attempt FIVE Questions minimum ONE Question from each Section.**
Attempt in Urdu or English.

SECTION-I

- Q. No. 1:** a) Describe the Importance of naturally occurring and synthetic plant hormones.
b) What is ascent of sap? Describe environmental conditions that affect plant water relation.
c) Write a note on biochemistry of proteins and fats.
d) Discuss the process of oxidative phosphorylation in plants.
(4x5=20 Marks)

- Q. No. 2:** a) What are the physiological roles of Cytokinins and Abscissic Acid in plant growth?
b) What is Donnan Equilibrium? Explain this phenomenon with example.
(10+10=20 Marks)

SECTION-II

- Q. No. 3:** a) What is the concept of productivity in an ecosystem? Describe its various types.
b) Describe the vegetation of Pakistan on the basis of climate, altitude, and plant types.
(10+10=20 Marks)
- Q. No. 4:** a) What are In-situ and ex-situ conservations? Support your answer with local examples.
b) What is salinity? Give its causes and control measures in Pakistan.
(10+10=20 Marks)

SECTION-III

- Q. No. 5:** a) What is Cytosol or Cytoplasmic matrix? Give the detail account of physical and chemical nature of Cytosol.
b) Define the ultra-structure of chromosome.
(10+10=20 Marks)
- Q. No. 6:** a) Describe the significance of mitosis and meiosis.
b) What are the functions of cell membrane and movement across membranes?
(10+10=20 Marks)

SECTION-IV

- Q. No. 7:** Write a detail note on euploidy. **(20 Marks)**
- Q. No. 8:** Differentiate between the followings: **(5x4=20 Marks)**
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|-------------------------------------|------------------------------------|
| a) Back cross and test cross | b) Replication and transcription |
| c) exons and Introns | d) Transduction and transformation |
| e) Induced and spontaneous mutation | |

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SECTION-V

Q. No. 9: Write short notes on any **TWO** of the following:

- a) Hardy-Weinberg's Law
- b) Evidences of Evolution
- c) Theory of Natural Selection

(10+10=20 Marks)