

SUBJECT: BOTANY (PAPER-II)

ALLOWED: THREE HOURS

MAXIMUM MARKS: 100

E: Attempt Any FIVE Questions in All. Be Precise and to the Point. Attempt ONE Question Each from Each Section 1, 2, 3 and TWO Questions from Section 4.

SECTION-1

- No. 1:**
- a) Discuss biological importance of water for plants. Also describe the path of water transport in plant body.
 - b) What are the physical forces and factors that drive the transport of water and minerals over a range of distances?
 - c) Define osmotic, turgor and wall pressures. What are the components of water potential? Discuss in detail.
 - d) What is the difference between evaporation and transpiration? Discuss the factors that affect transpiration rate in desert plants.
- (5x4=20 Marks)**

- No. 2:**
- a) Write a note on physiological and ecological considerations of photosynthesis.
 - b) Discuss the mechanism of action and role of brassinosteroids in plants.
 - c) Write a note on blue-light responses keeping in view stomatal movements and morphogenesis.
 - d) Describe the role of secondary metabolites in plant defense.
- (5x4=20 Marks)**

SECTION-2

- No. 3:**
- a) Differentiate between biotic and abiotic factors. How can abiotic factors affect plant distribution?
 - b) Forest ecosystem is the most productive. Comment.
 - c) Discuss different sampling techniques to evaluate population dynamics.
 - d) Differentiate *ex-situ* and *in-situ* conservation. Describe the role of *ex-situ* conservation with special reference to Pakistan.
- (5x4=20 Marks)**

- No. 4:**
- a) Define biome. Also discuss different vegetation zones in Punjab with reference to dominant plant species.
 - b) How does salinity affect productivity of crop species? How can we reclaim salt-affected lands?
 - c) How can we conserve our natural resources from soil, air and water pollution?
 - d) What is soil erosion? Discuss its causes and control in the Punjab region.
- (5x4=20 Marks)**