PUNJAB PUBLIC SERVICE COMMISSION

COMBINED COMPETITIVE EXAMINATION FOR RECRUITMENT TO THE POSTS OF PROVINCIAL MANAGEMENT SERVICE -2019

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 Abscisic 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)**

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 followings:

a) Hardy-Weinberg's Law

b) Evidences of Evolution

c) Theory of Natural Selection

(10+10=20 Marks)