

**PUNJAB PUBLIC SERVICE COMMISSION
COMBINED COMPETITIVE EXAMINATION
FOR RECRUITMENT TO THE POSTS OF
PROVINCIAL MANAGEMENT SERVICE, ETC.**

AGRICULTURE (OPTIONAL) PAPER-II

TIME ALLOWED: 3 HOURS

MAXIMUM MARKS: 100

Note: Attempt all questions. Write answers in English

SECTION-A

Q.1: Plant breeding is a multidisciplinary approach. Comment on this statement. (6)

Discuss the major accomplishments made and the future prospects of plant breeding.

Q.2: Write about the history of plant selection in self-pollinated crops. Demonstrate the progeny row test with suitable diagram, and discuss its importance in plant breeding. (6)

OR

Define mass selection and describe the procedure of this method for the development of a variety. Also discuss the merits and demerits.

Q.3: What is hybridization? Describe various types of hybridization. Write in detail the objectives of hybridization. (6)

Q.4: Define hybrid vigour, list its characteristic features and discuss its applications and achievements in crop improvement. (6)

Q.5: How high temperature affects the cotton production adversely? What strategy would you adopt for the development of heat tolerant cotton variety showing minimum loss to crop production. (6)

Q.6: There is hue and cry in Pakistan due to the expected failure up of rust UG-99 on wheat. What strategy do you think will be more effective to combat the problem, discuss it. (6)

Q.7: There is a huge area in Pakistan affected adversely by the spread of salts. Develop a breeding strategy for the utilization of these derelict lands for harvesting handful yields. (6)

OR

Development of GMO's in major crops is becoming very popular these days. What are the different techniques being used for the development of GMO's? Also write advantages and disadvantages of GMO's. (6)

Q.8: Adoption of distant hybridization is being emphasized these days for stress breeding. You comment on this statement. Explain the role of wide crosses in improving the potential of some crops in the domain of plant breeding, give convincing examples. (6)

Q.9: There are few breeding methods which speed up the formation of homozygous lines in shorter period of time. You please explain the mechanisms of these methods. (6)

Q.10: Explain the screening methods for the development of disease tolerant crop variety. After the identification of resistant genes how would you transfer it to the adapted variety? (6)

Q.11: Presence of organic matter in Pak soils is very low. You discuss the importance of organic matter for crop productions. What are the different factors which deteriorate the fertility of soil. (6)

OR

Explain reclamative measures and management practices to bring salty area under plough. Also discuss different soils in Pakistan. (6)

Q.12: Cotton crop is called a "problem crop". What do you mean by this? Write the significance of cotton for the economy of Pakistan. Also discuss the advantages of IMP in cotton crop. (6)

Q.13: Briefly describe the technique of somatic hybridization, and discuss its potential for crop improvement. (6)

Q.14: Discuss the achievement of mutation breeding in crop production. (6)

Q.15: Give advantages and disadvantages of synthetic variety. What measures would you suggest for the improvement of synthetic? (6)

OR

What is recurrent selection? List various types of recurrent selection. Describe the scheme of one of these methods. (6)

Q.15: Write short notes on following: (10)

- (i) Losses due to insect-pest complex.
- (ii) Genetic engineering for insect resistance.
- (iii) Insect biotype
- (iv) Transgenic disease resistance
- (v) Physiological races