

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

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

**TIME ALLOWED: THREE HOURS**

**MAXIMUM MARKS: 100**

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

- Q. No. 1:** Describe various types of air pollutants, their sources and environmental risks associated with them. Also give measures to reduce environmental pollution.  
**(10+10=20 Marks)**
- Q. No. 2:** Describe the role of rhizobia in symbiotic N<sub>2</sub>-fixation in legumes. Also describe various factors affecting biological N<sub>2</sub>-fixation.  
**(10+10=20 Marks)**
- Q. No. 3:** Describe features of different agro-ecological zones of Pakistan with respect to physiography, climate, soil and land use.  
**(20 Marks)**
- Q. No. 4:** Elaborate weed-crop interference mechanism. Describe different types of losses caused by weeds. Narrate in detail Integrated Weed Management System.  
**(5+5+10=20 Marks)**
- Q. No. 5:** Discuss the role of food industry in value addition of agricultural products. Write down the problems of food contamination/adulteration facing Pakistani consumer and suggest control measures to address this problem. **(10+10=20 Marks)**
- Q. No. 6:** Narrate soil, crop and land management factors influencing soil fertility and crop nutrition. Describe Integrated Nutrient Management System for cultivated fields.  
**(10 + 10=20 Marks)**
- Q. No. 7:** Write in detail the importance of Indus Basin Irrigation Systems in the development of Agriculture in Pakistan. Throw light on vulnerability and possible threats being posed to this system under changing climatic conditions.  
**(10 + 10=20 Marks)**
- Q. No. 8:** Elaborate contribution of agriculture sector to the national economy of Pakistan. What role Information Technology (IT) can play to boost share of Agriculture sector to GDP of our country?  
**(10 + 10=20 Marks)**

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**MAXIMUM MARKS: 100**

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

- Q. No. 1:** What are the molecular bases of genetic code? Discuss in detail the mechanism of gene expression in plant cells? **(10+10=20 Marks)**
- Q. No. 2:** Write a detailed note on potential of oil-seed crops cultivation in Pakistan and their role for the improvement of national economy? **(20 Marks)**
- Q. No. 3:** Describe in details about different factors affecting the plant disease epidemiology? Discuss various methods of control and manage the plant diseases? **(10+10=20 Marks)**
- Q. No. 4:** Discuss different ways of virus transmission in plants? What are different strategies that may be used to prevent/control the viral diseases in plants? **(10+10=20 Marks)**
- Q. No. 5:** Discuss in details the role of agri-biotechnology for the improvement of crops? What may be the impact of genetically modified crops on natural biodiversity? **(10+10=20 Marks)**
- Q. No. 6:** Define Mutation; explain how mutation plays a role in plant breeding along with any example of success. **(5 + 15=20 Marks)**
- Q. No. 7:** Name important sucking and chewing types of insect pests of cotton. Explain life cycle, mode of action and suitable control measures of any one of these insects. **(10 + 10=20 Marks)**
- Q. No. 8: Write short note on the following: (4x5=20 Marks)**
- i. Tissue culture technology
  - ii. Sericulture industry
  - iii. In-built genetic resistance of plants
  - iv. Plant parasitic nematodes