

**ARUNACHAL PRADESH PUBLIC SERVICE COMMISSION ITANAGAR**  
**SUBJECT: AGRICULTURE**

Time: 3 hours  
Full Marks: 200

**Note: Question No. 1 is compulsory and any four from the remaining seven questions. All questions carry equal marks.**

**Q. No. 1. Attempt any 10 (ten) 10 x 4 = 40**

- A. What is protoplast? Write the physical and chemical properties of protoplasm.
- B. What do you mean by photosynthetic pigments? Narrate a brief note on it.
- C. What do you mean by quantitative characters? Does environment play any role on expression of these characters?
- D. Suggest how soil erosion in hilly areas of Arunachal Pradesh could be checked.
- E. Draw a distinction between RNA & DNA.
- F. How wants differ from effective demand? State the characteristics of wants.
- G. What "Land" implies in economical studies? State the characteristics of land.
- H. Write a brief note on harvesting of latex from papaya.
- I. What do you mean by grafting? Narrate the merits of grafting.
- J. What is the significance of IPM? State in brief.
- K. What are the basic features of Indian Seed Act?
- L. State the basic methods of nematode control.

**Q. No.2 Attempt any 8 (eight) 8 x 5 = 40**

- A. Explain in brief the significance of growth hormones in development of plants.
- B. "Micro propagation" is widely practiced in commercial horticulture. Supplement your views.
- C. Briefly discuss two physiological problems that occur in plants due to deficiency of soil moisture.
- D. Critically discuss the control measures of Shoot and fruit borer of brinjal.
- E. What are the factors responsible for development of soil acidity in the field crops? Discuss in brief.
- F. State the role played by cooperative organizations in agricultural development in Arunachal Pradesh with a suitable example.
- G. Expand 'RKVY' and state its impact in Arunachal Pradesh.
- H. What do the terms education, training and extension signify? In short narrate your observations.
- I. What practices would you recommend for preventing and spread of weeds?
- J. Write in brief the biological control of plant diseases.

**Q. No. 3. Attempt any 5 (five) 5 x 8 = 40**

- A. What do mean by factors of production? Describe the characteristic features of capital.
- B. Explain the following:
  - a) Crop loan    b) Damping off    c) Bio-fertilizers    d) Organic farming

- C. What are fungicides? Describe the fungicides classified on the basis of chemical composition.
- D. Agricultural technologies are not properly adopted by the farmers. How do you observe it? State your comment logically.
- E. Nutrient management plays a key role in crop yield. State the problems of nutrient management in acid soils.
- F. Explain heterosis and inbreeding depression. Describe the genetic basis of heterosis and inbreeding depression.
- G. Write short notes on:
  - a) Nucleus seed
  - b) Isolation distance
  - c) NBPGR
  - d) Bt gene

Q. No. 4 Attempt any 4 (four)

4 x 10 = 40

- A. What is "Multiple & Relay cropping"? Write the significance of multiple cropping in modern agriculture with your critical observations.
- B. Write in brief :
  - a) Symbiosis
  - b) Chemotherapy
  - c) Strip cropping
  - d) Apiculture
  - e) Utility
- C. What are the major pests of cereal crops? Mention their systematic positions and crop damaging symptoms.
- D. What are the essential elements? Discuss the criteria of essentiality of elements in plant life.
- E. What are the borer pests? Write the management practices followed in farmer's field in controlling of borer pests.

Q. No. 5 Attempt any 2 (two)

2 x 20 = 40

- A. What do you mean by biological nitrogen fixation? Explain with suitable example how symbiotic and non-symbiotic bacteria can fix atmospheric nitrogen in soil.
- B. Discuss the propagation techniques, major threats and opportunities of commercial production of apple in Arunachal Pradesh.
- C. What are the essential elements? Discuss the criteria of essentiality and significant role of different essential elements in plant life.

Q. No. 6 What is distant hybridization? Describe its role in improvement of crop plants with suitable examples. Name few artificially produced amphidiploids species and state how they originated.

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Q. No. 7 Discuss the factors affecting water use efficiency of field crops. Write the irrigation management practices of rice and wheat under constraints of irrigation water in a command area of Arunachal Pradesh.

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Q. No. 8 What does co-operation mean? Briefly discuss the history of co-operative movement in India. How co-operatives can help in economic development of a state? Write the specific role of co-operatives in production and marketing of agricultural products.

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