

ARUNACHAL PRADESH PUBLIC SERVICE COMMISSION

AGRICULTURE PAPER – II

Time: 3 (Three) hours

Full marks: 100

(Group – A is compulsory. Attempt any FOUR questions from Group – B).

GROUP – A

(This Group is COMPULSORY)

Q.1. Answer any 10 (ten) of the following questions.

2x10=20

- a. What is induced mutations?
- b. State the two most important abiotic factors for proliferation of store grain pests?
- c. Write a short note on staining of bacteria.
- d. List the major approaches of breeding for draught resistance varieties.
- e. What do you understand by 'dumping off' of seedlings?
- f. Distinguish between andromonoecious and gynomoecious vegetables.
- g. Mention the important nematode pests of rice.
- h. Describe the characteristics of viroids.
- i. Distinguish between seed viability and seed vigour.
- j. Write a note on "intergeneric hybridization".
- k. State the uses of papaine?
- l. Write a brief note on "CAM mechanisms".

GROUP – B

(Answer any Four.)

Q.2. Answer any 8 (eight) of the following questions.

2.5x8=20

- a. State the major fruits grown in Arunachal Pradesh?
- b. Distinguish between monogenic and polygenic traits.
- c. What do you mean by incompatibility? Discuss in brief.
- d. Explain vernalization in the context of plants.
- e. State the laws of heredity.
- f. What is surface tension? What is its role in plant life?
- g. What are enzymes? How enzymes are classified?
- h. What are the different types of reproduction found in fungus?
- i. What do you mean by "IPM"? How it is helpful in agriculture?
- j. What is cucurbitacin? Describe measure(s) to be adopted to counter the effects of cucurbitacin.

Q.3. Answer any 5 (five) of the following questions.

4x5=20

- a. What is photosynthesis? Discuss the modern concept of photosynthesis.
- b. What are the characteristics of clonally propagated crops? Discuss.
- c. Distinguish between aerobic respiration and anaerobic respiration.
- d. Describe the disease cycle of late blight of potato which results in year after year infection along with the causal organism.
- e. What are the causes of seed dormancy? Discuss.
- f. Discuss the role of cytokinin in cell division.
- g. Explain; any 2(two)
 - i) Cole crops
 - ii) Panama disease
 - iii) Sex-pheromone

Q.4. Answer any 4 (four) of the following questions.

5x4=20

- What do you mean by quality of seed and seed deterioration? What are the factors responsible for seed deterioration?
- What do you mean by "plant regulators"? Discuss the role of plant regulators in Agriculture.
- How does potato tuber moth damage the potato crop? Write about management of this pest.
- Write a short note on structure of chloroplast.
- Write short notes on (i) Growth inhibitors and (ii) Synthetic auxins.
- What do you mean by extra-nuclear inheritance? State how extra-nuclear inheritance can be used by plant breeders.

Q.5. Answer any 2 (two) of the following questions.

10x2=20

- Explain the importance of post harvest handling of horticultural crops. Draw a flowchart suggesting possible steps involved in post harvest handling of horticultural crops.
- What do you mean by photoperiodism? What is the importance of photoperiodism in flowering of plants? Discuss in context to agricultural crops.
- Briefly discuss about the National food policies which are recently adopted by the Government.

Q.6. Answer any 2 (two) of the following questions.

10x2=20

- Give a brief account of packaging of fresh fruits with reference to packaging materials, cushioning materials and use of plastics.
- What is enzyme? Explain group specificity, absolute specificity and specific specificity of enzymes with suitable examples.
- What is mass selection? Give its types, important features, merits, demerits and achievement in the field of development of plant varieties.

Q.7. Answer any two of the following questions.

10x2=20

- What do you mean by biological control of plant diseases? Name two fungal and two bacterial agents used for control of plant diseases.
- Describe the environmental factors that affect (i) Photosynthesis and (ii) respiration
- Discuss the chemical changes that occur in host plant due to infection of pathogens.

Q.8. Briefly discuss the handling and marketing problem that are facing by the fruits and vegetables growers of Arunachal Pradesh

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Q.9. Discuss about the principal methods of preservation of major fruits and vegetables to minimize the post harvest loss.

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Q.10. Write short notes on any 4 (four)..

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- Diffusion
- Ornamental Plants
- Sex-limited characters
- Epidemiology
- Microbial toxins
- Fat metabolism

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