

COMBINED COMPETITIVE EXAMINATION (MAIN)

AGRICULTURE

Paper—I

Time : 3 hours

Full Marks : 200

Note : (1) The figures in the right-hand margin indicate full marks for the questions.

(2) Attempt **five** questions in all.

(3) Question No. 1 is compulsory.

1. Answer any ten of the following :

4×10=40

- (a) Discuss some scientific approaches to manage a sustainable ecosystem.
- (b) What is meant by cropping pattern? Discuss the importance of multiple cropping in relation to food production.
- (c) Explain the differences between agroforestry and natural forest.
- (d) Describe the package of practices for production of mustard.
- (e) Give a brief account of biological weed control.
- (f) Describe the mechanisms involved in symbiotic nitrogen fixation.
- (g) Define 'dryland agriculture'. Discuss the problems associated with it.
- (h) What is water use efficiency of a crop? Discuss the method of drainage from waterlogged soil.
- (i) How are farm planning and budgeting important in rural economy of India?
- (j) Describe the different extension activities related to 'lab to land' programme in Arunachal Pradesh.
- (k) Give a brief account of classification of Indian soil.
- (l) Discuss some detrimental effects of environmental pollution associated with crop production.

2. Answer any *eight* of the following :

5×8=40

- (a) Describe the United Nations' efforts towards environmental problems.
- (b) Discuss the suitable agro-ecological management strategies.
- (c) Discuss the climatic parameters in relation to agro-ecosystem.
- (d) Enumerate the factors influencing soil erosion. Discuss briefly.
- (e) What are the impacts of climate change in agriculture?
- (f) Give a brief account of enterprise budgeting.
- (g) How does mechanization of farm positively alter farm output? Discuss briefly.
- (h) What is farm labour efficiency? Enumerate the factors that influence the farm labour efficiency in Arunachal Pradesh.
- (i) Write the importance of quarantine check of weed seeds in importing food grain.
- (j) How does industrial effluent affect soil health?

3. Answer any *five* of the following :

8×5=40

- (a) What is the role of Agricultural Technology Management Agency (ATMA)? Discuss.
- (b) What are the various steps associated with farm planning and budgeting? Describe systematically.
- (c) Discuss some measures to increase water adsorption and retention capacity of soil.
- (d) What are the major causes of soil degradation? What measures may be adopted to reduce soil degradation? Discuss briefly.
- (e) Define the term 'watershed'. Write briefly on watershed management.
- (f) Discuss some important emerging concepts of transfer of technology.

4. Answer any *four* of the following : 10×4=40

- (a) Discuss the mineral and organic constituent of soil in relation to crop productivity.
- (b) Give an account of functions of nitrogen and phosphorus in plant.
- (c) Why are marketing and pricing information considered critical in agricultural marketing? Discuss the factors of price fluctuation in agricultural products.
- (d) Who are the target groups in agricultural extension? State the mechanism to reach such groups.
- (e) Discuss various farm management tools for better output.

5. Answer any *two* of the following : 20×2=40

- (a) Explain elaborately the various methods to reclaim the degraded soils.
- (b) What are the major problems of fertilizer management in sodic and saline soils? Discuss the significance of integrated nutrient management in modern agriculture.
- (c) Outline one suitable cropping pattern for the hilly slopes considering the soil conservation measures.

6. Answer any *four* of the following : 10×4=40

- (a) Describe crop-weed competition in relation to crop yield.
- (b) Discuss the process of fixation of minimum support prices of agricultural products.
- (c) Discuss the challenges in agricultural marketing system.
- (d) What are the scientific irrigation scheduling criteria? Explain.
- (e) Give an account of functions of micronutrients in plant.

7. Answer any *two* of the following : 20×2=40

- (a) Name the important minerals found in different rocks. Describe different types of weathering of rocks and minerals elaborately.
- (b) Give an account of action of systemic herbicide on weed with the help of suitable examples.
- (c) Define sustainable agriculture. What are the criteria of sustainability in agricultural system? Describe elaborately.

8. Answer any *two* of the following : 20×2=40
- (a) Describe the production practices of some important pulse crops grown in North-East India.
 - (b) Give an account of the problems and prospect of oil seed production in Arunachal Pradesh.
 - (c) Discuss the cultivation practices of some important commercial crops of North-East India.
9. Answer any *two* of the following : 20×2=40
- (a) Discuss the mechanisms of nitrogen losses from waterlogged soil. Describe the various practices to increase nitrogen use efficiency in submerged soil.
 - (b) Describe the mechanisms involved in herbicide resistance by weeds.
 - (c) How is agroforestry plantation helpful to the farmers? Outline a model agroforestry plantation system.
10. Write explanatory notes on any *four* of the following : 10×4=40
- (a) Participatory rural appraisal
 - (b) Training programme for extension workers
 - (c) Significance of farm mechanization
 - (d) Role of cooperatives in agricultural economy
 - (e) Prioritization of watershed problem
 - (f) Phosphate fixation in acid soil
