

142019

COMBINED COMPETITIVE EXAMINATION (MAIN)

AGRICULTURE

Paper-II

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 questions :

4×10=40

(a) What is the significance of Gregor Mendel's classical experiment?

(b) How can plant quarantine help in the insect-pest management?

(c) Why are storage grain insect-pests more difficult to manage?

(d) Define parasitoid and parasite.

(e) Define aerobic and anaerobic respirations.

(f) What is transgenic breeding?

(g) What do you mean by cytoplasmic male sterility?

(h) What are the prerequisites for quality seed production?

(i) Explain the terms osmosis and osmotic pressure.

(j) Write briefly the mechanism of action of plant hormones.

(k) Why is formulation of pesticides required?

(l) What are the crops covered under the five components of 'National Food Security Mission'?

2. Answer any *eight* of the following questions :

5×8=40

(a) Explain photosynthesis. What is the formula of photosynthesis?

- (b) Discuss about photoperiodism in plants.
- (c) What are different components of integrated pest management?
- (d) Discuss seed priming methods and their advantages.
- (e) Describe, in brief, the basic principles of landscaping.
- (f) Why did domestication of plants occur in some areas and not in others?
- (g) Discuss, in brief, the breeding methods of cross-pollinated crops.
- (h) Discuss, in brief, the significance of Koch's postulate in plant pathology.
- (i) Describe the common symptoms of bacterial wilt of tomato.
3. Answer any *five* of the following questions : 8×5=40
- (a) Discuss about different classes of seed recognized in seed certification.
- (b) What do you mean by enzymes? Discuss about their functions and structure.
- (c) Explain the dominance hypothesis of heterosis.
- (d) Discuss self-incompatibility in plants.
- (e) What are the objectives of preservation of fruits and vegetables?
- (f) Write about the causal organism and symptoms of late blight of potato.
- (g) How can the constraints in food production of Arunachal Pradesh be addressed?
4. Answer any *four* of the following questions: 10×4=40
- (a) What are auxins and how do they affect plant growth?
- (b) What are the major differences between Mendelian inheritance and cytoplasmic inheritance?
- (c) How can malnutrition among Indians be minimized?
- (d) Explain how environmental factors can affect photosynthesis and respiration in plant.
- (e) What are the major insect-pests of banana? Write about the nature of damage and management practices of any two of these.
5. Answer any *two* of the following questions : 20×2=40
- (a) What are the major bacterial and viral diseases of rice in India? Write about the symptoms and management of any two viral diseases with their respective vectors.

- (b) Write the package of practices of pineapple with special reference to propagation, manures and fertilizers and plant protection measures.
- (c) What are the reasons for low production of pulses in India? What steps are needed to be taken to increase the production of pulses?
6. Answer any *four* of the following questions : 10×4=40
- (a) What is polyploidy? Discuss, in brief, about its role in plant breeding.
- (b) Give a brief account of important insect-pests of cole crops with special reference to diamondback moth.
- (c) Discuss transgenic genetic male sterility and its uses.
- (d) Discuss the roles of plant growth regulators in horticultural crops with suitable examples.
- (e) Enumerate the important storage grain insect-pests of North Eastern Region of India. Describe, in brief, the biology and management of any one of these.
7. Answer any *two* of the following questions : 20×2=40
- (a) Classify insecticides on the basis of mode of action with examples.
- (b) What do you mean by food security? Discuss about the factors contributing to food security crisis.
- (c) Differentiate between macro-mutations and micro-mutations. Describe the mutation breeding for crop improvement.
8. Discuss about the role of National Seed Organizations in seed production, procurement, processing and marketing in India. 40
9. Educated youths are shying away from agriculture. To attract them to agriculture, suggest your strategy basing upon any two of the following agricultural commodities. 40
- (a) Apple
- (b) Orange
- (c) Kiwi
10. Write short notes on the following : 4×10=40
- (a) Citrus dieback
- (b) Bt brinjal
- (c) Panama disease of banana

- (d) Hopper burn of rice
- (e) Tissue culture
- (f) Norman Borlaug
- (g) Seed dormancy
- (h) Plant quarantine
- (i) Translocation
- (j) Orchids of Arunachal Pradesh