

AGRICULTURE

Note: Attempt Five questions in all. All questions carry equal marks i.e. 30. Q. No. 1 is compulsory. Answer two questions from Part I and two questions from Part II. The parts of the same question must be answered together and must not be interposed between answers to other questions.

1. Write critical notes on any four of the following:

(4x7½=30)

- (a) Agro Forestry
- (b) Organic Farming
- (c) Lab to Land Programme
- (d) GM Crops
- (e) C-4 Pathway of Photosynthesis
- (f) Mendel's Laws of Inheritance.

Part I

2. Explain the difference between any Six of the following pairs with suitable examples wherever necessary:

(6x5=30)

- (a) Fertilizer Use Efficiency and Fertilizer Utilization Efficiency
- (b) Organic Fertilizer and Biofertilizer
- (c) Farm Planning and Farm Budgeting
- (d) Straight Fertilizer and Complex Fertilizer
- (e) Multiple Cropping and Relay Cropping
- (f) Macro and Micro Nutrients
- (g) Chlorosis and Necrosis
- (h) Soil Texture and Soil Structure.

3. (a) Explain the trends in Population growth, Food demand and Crop production in India. (10)

(b) Project the Expected Population, Food demand and Crop production in the year 2020. (10)

(c) Explain the avenues available to increase crop productivity and production to satisfy food demand in the year 2020. (10)

4. (a) What do you understand by soil and water conservation ? (06)

(b) Suggest suitable soil and water conservation practices under leveled field conditions. (10)

(c) Explain the ways of loss and availability of urea in submerged rice crop. (06)

(d) Explain the differences between alkaline and saline soils. Give suitable measures for reclamation of these soils. (08)

PART II

5. (a) Define the term "Seed dormancy" Explain different types of seed dormancy encountered in seeds. (12)
- (b) Discuss the various methods available to break seed dormancy. (08)
- (c) Give a brief description of physiological and biochemical changes taking place in a germinating starchy seed. (10)
6. (a) What is hybrid vigour ? How is beneficial in crop improvement? (05)
- (b) Describe the methods adopted in hybrid seed production in Sorghum or Bajra (12)
- (c) Discuss the principle and importance of "Isolation" and "Rouging" for maintenance of genetic purity during seed production. (08)
- (d) Explain any two methods employed in seed testing laboratories to study viability and vigour of the seeds.
7. (a) What are the broad Integrated Pest Country. (08)
- (b) Discuss the important integrated pest management in Integrated Agriculture. (05)
- (c) Explain briefly the preventive and curative measures for the control of storage grain pests. (07)
- (d) Name one important crop disease caused by: (10)
- (i) Virus
 - (ii) Bacteria
 - (iii) Fungi
 - (iv) Nutrient deficiency

Give the brief description of the disease symptoms and one effective measure each for prevention and control of the above diseases.

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