IAS Mains Agriculture 1992

Paper-II

Section A

1. Answer any three of the following in about 200 words each:

    a. What is the role of Seed Moisture Content ‘’ Relative Humidity ‘and Temperature’ it dividually and in cordination on the seed langevity in storage?

    b. Answer the questions

        i. Name the dwarfing gene ‘which is responsible for the evolution of’ New Plant Types of wheat. What were the pioneer scientists who developed dwarf hybrid wheats by using these ‘dwarfing genes’

        ii. Give the Genetical and Physiological characteristics of any two important dwarf wheats.

        iii. Do you think that this was the beginning of revolution in wheat cultivation in India?

    Discuss in detail.

    c. Answers the questions below

        i. Discuss the importance of ‘Isolation’ and'Roguing for maintenance of genetic purity during pure seed production

        ii. Give the minimum isolation requirement while pro ducing the foundation and certified seeds of Hybrid Sorghum (open polinated-varieties) and Composite Maize (open polinated varieties). Also state what other crops can polinate these two crops.

    d. What is meant by ‘seed health’ Describe the laboratory method of technique for testing wheat seeds for

        i. quick viability

        ii. loose smut infection.

2. Answer the following questions

    a. How has Allopolyploidy been more successful in the evolution of new crop species? Describe briefly the evolutionary history of some important allopolyploid crop species with special reference to Wheat. Cotton and Triticale.

    b. What are synthetic varieties? What are the possibilities for their commercial utilization? List the operations in the production of a synthetic variety and mention their merits and demerits.

    c. Genetic resistance is the most desirable and useful method of controlling a pest. Comment

    d. Write short notes on the following:

        i. Domestication of crop species.

iii. Crops originated in the ‘Central American Centre of origin’

3. Distinguish between the following:

   a. Maintainer Lines Versus Restorer Lines

   b. Nitrogen deliciency Versus Sulpher deficiency in Plants.

   c. Spontaneous Versus Induced Mutations

   d. Self pollination Versus Cross-pollination

   e. Phototropism Versus Geo-tropism.

4. Answer the following questions

   a. ‘Biological fixation of Nitrogen is of primary importance in maintaining the level of fixed nitrogen on the earth’ Discuss.

   b. Budding of potatoes in storage is often an important commercial problem. Suggest how the bad development can be inhibited. Further, release of dormancy in potato may be of some economic and commercial value to the farmers and breeders. Discuss, how this can be achieved.

   c. Describe, some of the physiological reasons, why water deficiencies are inhibitory to Photosynthesis.

   d. Do you think that physiological processes of the plants are affected by fluorine and its compounds? If so, discuss.

Section B

5. Answer the following questions

   a. Describe the life history, habits and control measures of-the following pests of stored pulses. Neat diagrams should be furnished along with the description of life history.

      i. PACHYMERUS CH1NENS1S LINN

      ii. BRUCHUS PHASEOLI GYLL

   b. Answer the questions

      i. Suggest briefly the different types of vegetable Farming. What vegetables are to be sown in a kitchen garden in East India from September to December?

      ii. Name any Three hedge plants which can be grown very successfully in alkaline soils.

      Give their method of propagation and time of plantation in the plains of North India.

   c. State the important diseases ana pests of the following crops and give their control measures:

      i. Brinjal

      ii. Peas.

6. Answer any three of the following in about 200 words each:

a. Discuss how hereditary and environmental factors influence the plant behaviour.

b. In what way do 'Plant Growth Substances' differ from 'Plant Hormones' Name some important natural as well as synthetic plant growth substances and describe briefly their physiological role.

c. Describe the various enzymes found in fruits and vegetables. What is their specific action? How is velocity of enzyme action affected by temperature?

d. Distinguish between 'Mould' and 'Yeast' What are the different types of yeasts? Describe briefly their mode of action.

7. Answer the following questions

a. Answer the questions below

i. Give the nutritive value of Tropical and Subtropical fruits. What deficiency symptoms occur in human body due to lack of important vitamins and how can these be supplimented by fruits?

ii. Compare the energy value produced by one hectare of wheat with that of Papaya (Assuming if the edible yield of wheat is 16.49 Q ha and that of Papaya is 37.50 tonnes ha.)

b. How Litchi is propagated? What are the causes of fruit drop in Litchi and how can it be controlled?

c. Answers the questions below

i. In which part of the world, the edible bananas are believed to have originated? Give its distribution and climatic requirements.

ii. Banana Witt and Bunchy top often occur in epidemic form and bring catastrophic losses to Banana Industry in India: Mention the causal organisms. What factors favour the spread of these diseases? Give their possible control measures.

d. Differentiate between pruning and training of fruit trees.

How growth, development and yield of fruit trees is affected by pruning?

8. Answer the following questions

a. An increase in Agricultural production is not fully accomplished due to lack of finance in India. Discuss the various needs and necessities of the farmers and the role of various institutions as a soures of Agricultural credit.

b. What are the causes of Food Problem in India? Give a brief resume of the 'Food Problem' since independence in our country. Discuss the measures of solve this problem.

c. What special problems are encountered by the Indian farmers in marketing of their Agricultural products? Discuss the role and advantages of cooperative marketing.

d. Answer the following

i. Why are the prices of fertilizers controlled by Government of India.

ii. When was fertilizer control order enforced? What are the advantages of the present fertilizer pricing policy?

iii. What factors contribute to the use of fertilizers? Do you think a reduction of 10 per cent in the price of urea announced by Government of India on 26th August, 1992 will enhance production?

iv. How can Biofertilizers substitute the use of inorganic nitrogenous fertilizers?