

**2006**  
**AGRICULTURE - II (Optional)**

000023

*Standard : Degree**Total Marks : 200**Nature : Conventional**Duration : 3 Hours***Note :**

- (i) *Answers must be written in English only.*
- (ii) *Question No. 1 is Compulsory. Of the remaining questions, attempt any four selecting one question from each section.*
- (iii) *Figures to the RIGHT indicate marks of the respective question.*
- (iv) *Number of optional questions upto the prescribed number in the order in which they have been solved will only be assessed. Excess answers will not be assessed.*
- (v) *Credit will be given for orderly, concise and effective writing.*
- (vi) *Candidate should not write roll number, any name (including their own), signature, address or any indication of their identity anywhere inside the answer book otherwise he will be penalised.*
- (vii) *For each slab of 10, 15 and 20 marks, the examinee is expected to write answers in 125, 175 and 250 words respectively.*

**1. Answer any four of the following :**

- (a) (i) What are the prevailing legal provisions to ensure supply of high quality seed of plant varieties to farmers in India ? Give salient features of at least one of these. 2, 4
- (ii) Enumerate the four most important seed certification standards ? 4
- (b) Describe the different formulations of pesticides with suitable examples. 10
- (c) (i) What is the existing policy of the Government of India for procurement of food grains and what are its objectives ? 2, 3
- (ii) How the rising income of Rural and Urban Indians have affected the food production pattern ? 5

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- |   | <b>Marks</b> |
|---|--------------|
| (d) What is remote sensing ? How remotely sensed data can be used for sustainable agricultural growth ? | 2, 8         |
| (e) (i) Discuss the role of institutional agencies in agricultural financing.                           | 4            |
| (ii) Explain the impact of WTO on Indian agricultural development.                                      | 3            |
| (iii) Discuss Co-operative Movement in India. Write in brief the success story of AMUL.                 | 2, 1         |

### SECTION - A

2. (a) (i) What is DNA polymerase ? List different types of DNA polymerases and give their location and functions. 1, 4, 4
- (ii) What is Nucleolus ? Describe its structure and functions. 2, 4
- (b) (i) What are Plant Genetic Resources ? What are the recent approaches to conserve these ? 2, 3
- (ii) Write a short note on the National Bureau of Plant Genetic Resources (NBPGR). 5
- (c) (i) What are the two most important components of Photosynthetic apparatus ? Give their functions. 6
- (ii) What is Emerson effect ? 3
- (iii) What are C<sub>4</sub> plants ? Give their important characteristic features. 1, 5
3. (a) What is Meiosis ? How does meiosis differ from mitosis in relation to end results and mechanism ? 2, 5, 8
- (b) What is the basis of male sterility in plants ? How male sterility has been used to exploit hybrid vigor ? 4, 6
- (c) (i) What is anaerobic respiration and how does it differ in plants and bacteria ? 2, 3
- (ii) Name the important types of growth regulators found in plants. Give physical and physiological effects of Gibberellins. 3, 4
- (iii) What are Rht genes ? How did such genes increase plant yields ? 1, 2

## SECTION - B

4. (a) Discuss the importance of integrated disease management in context of intensive agriculture. 10
- (b) What are advantages of biological control ? Describe different approaches of biological control. 10
- (c) Enlist the organisms found associated with cotton boll rot complex and describe the management strategies for them. 10
- (d) (i) Preventive and curative measures for control of stored grain pests. 5
- (ii) Nematodes problem in cotton and their management. 5
5. (a) How does crop disease forecasting help to control disease ? 10
- (b) Define disease epidemic and discuss its causes. 10
- (c) Enlist the insect-pests of groundnut and describe the management strategies for them. 10
- (d) (i) Management of nematodes problem in tomato, brinjal and chillies. 5
- (ii) IPM tactics in chickpea. 5

## SECTION - C

6. (a) What are the two most serious nutritional deficiencies prevalent in Indian population and what are their implications ? Can biotechnology help resolve any of these problems ? If yes, how ? And what problems do you foresee in use of biotechnology to overcome this ? 2, 1, 4, 3
- (b) What are the characteristics of good quality semen in cattle ? What is semen extension ? How the semen can be effectively extended ? 5, 2, 8
- (c) What is a transgenic technology ? List 10 crop plants in which transgenics have been developed in India. Enumerate the likely advantages of transgenic technology in agriculture. 3, 5, 7

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|----|-----|---|---------|
| 7. | (a) | (i) What changes in the quality of food have occurred in India with increase in food production and its availability to average Indians ?   | 5       |
|    |     | (ii) Compare the food production of India in pre and post green revolution period.  | 5       |
|    | (b) | Give important features of different types of animal diseases. List steps that can be taken to check the spread of infectious diseases.   | 5, 10   |
|    | (c) | (i) What is totipotency ? What type of tissues can be used for efficient regeneration of plants. Name these tissues ? Give two examples of application of plant tissue culture for human welfare. | 1, 3, 3 |
|    |     | (ii) Give the functions of regulatory bodies involved in ensuring biosafety of transgenic products in India.  | 8       |

## SECTION - D

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|----|-----|---|------|
| 8. | (a) | What is the latest mandate of KVKs ? Analyze the role of KVKs in agricultural development.                                | 4, 4 |
|    | (b) | Define farm management. Discuss typical farm management decisions.  | 3, 7 |
|    | (c) | (i) Discuss the concept of ATIC.  | 5    |
|    |     | (ii) Discuss principal characteristics of government farm plan.   | 5    |
|    | (d) | Describe the following :  |      |
|    |     | (i) Privatisation of extension agencies   | 4    |
|    |     | (ii) Cyber extension  | 4    |
|    |     | (iii) Prospects of agri-clinics in India  | 4    |
| 9. | (a) | (i) Explain with the help of diagram three stages of production function.   | 5    |
|    |     | (ii) What is the importance of audiovisual aids in extension education ?  | 5    |
|    | (b) | (i) Explain different types of farming. What are the factors affecting types of farming ?                                 | 2, 3 |
|    |     | (ii) What are major functions in marketing ? Explain the problems faced by the farmers in case of storage of commodities. | 2, 3 |
|    | (c) | (i) What is your opinion about use of mass-media in extension education ?   | 3    |
|    |     | (ii) Define extension education and explain its importance in agricultural development.                                   | 7    |
|    | (d) | Describe the following :  |      |
|    |     | (i) Organisational setup of ATMA  | 5    |
|    |     | (ii) Beneficiaries under IRDP   | 5    |

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