

1(CCE.M)2
Agriculture—I
(01)

Time : Three Hours]

[Maximum Marks : 300

INSTRUCTIONS

- (i) Answers must be written in English.
- (ii) The number of marks carried by each question is indicated at the end of the question.
- (iii) The answer to each question or part thereof should begin on a fresh page.
- (iv) Your answer should be precise and coherent.
- (v) The part/parts of the same question must be answered together and should not be interposed between answers to other questions.
- (vi) Candidates should attempt question no.1 which is compulsory and any **four** more out of the remaining questions.
- (vii) If you encounter any typographical error, please read it as it appears in the text-book.
- (viii) Candidates are in their own interest advised to go through the General Instructions on the back side of the title page of the Answer Script for strict adherence.

- (b) Technologies available for enhancing the productivity of rain-fed crops and how to mitigate the drought effects. 55
7. (a) Answer any **five** of the following :
- (i) Essentiality of plant nutrients
 - (ii) Cultural programs as the tools of extension communication
 - (iii) Efficient techniques of farm management
 - (iv) Super-markets : How they are useful in farming with any example.
 - (v) Bio-fertilizer use in India
 - (vi) Green manuring crops
 - (vii) Micro-nutrients and their role in plant nutrition.
- (b) Government interventions in Agricultural produce marketing—recent advances and legal frameworks evolved over years. 55
8. (a) Write short notes on any **five** of the following :
- (i) Soil and plant analysis
 - (ii) Rock phosphate
 - (iii) Acid, neutral and basic fertilizers
 - (iv) Soil amendments

2. (a) Differentiate between any **five** sets :
- (i) Acidic soils and alkaline soils
 - (ii) Symbiotic and asymbiotic N fixation
 - (iii) Inter cropping and mixed cropping
 - (iv) Drip irrigation and sprinkler irrigation
 - (v) PRA and PTD
 - (vi) Macronutrients and micronutrients
 - (vii) Marginal cost and opportunity cost.
- (b) Explain in detail the principles and practices of Integrated Nutrient Management. 55
3. (a) Explain any **five** of the following :
- (i) Deficiency and role of N in plants
 - (ii) Govt. interventions in agricultural marketing
 - (iii) ICT tools in agricultural extension
 - (iv) Farmers field schools in technology transfer
 - (v) SRI method of rice cultivation
 - (vi) Contract farming
 - (vii) Customized fertilizers.
- (b) What are the non-cash inputs and LEISA tools that can help in enhancing the farm profitability under various cropping systems in India ? 55

4. (a) Give scientific reasons for any **five** :
- (i) Legume seeds are treated with Rhizobium before sowing.
 - (ii) Broad spectrum herbicides can be used before crop sowing.
 - (iii) Regular pruning of lower branches in tree crops is desirable.
 - (iv) Saline soils can be treated with only good quality water.
 - (v) Farmers are interested in total income than total yield.
 - (vi) Split application of N and K is desirable.
 - (vii) Some chemicals are allowed under organic farming.
- (b) Farm mechanization is only partially successful in India. Why and how it can be made more user friendly under Indian conditions ? 55

5. (a) Following terms may be explained (any **ten**) :
- (i) Front-line demonstrations
 - (ii) Poster presentation
 - (iii) Fertilizer use efficiency
 - (iv) Harvest index
 - (v) pH
 - (vi) Liming
 - (vii) Nitrification
 - (viii) Sugarcane planter machines
 - (ix) Arrowing in sugarcane
 - (x) Glyphosate
 - (xi) Micro irrigation
 - (xii) ITK.

- (b) Explain in detail the principles and practices of Integrated Watershed Management and various programs in vogue in India now. 55

6. (a) Give the package of practice for following crops :

Package	SRI Rice	Irrigated sugarcane	Bengal gram	Ground -nut	Sunflower	Wheat
Seed rate (kg/ha)						
Spacing (cm)						
Recommend NPK						
Herbicide & dose (kg/ha)						
Major pest & diseases						
Yield (kg/ha)						
Cost of cultivation (Rs.)						
Profit (Rs./ha)						

- (ix) No continuation sheets shall be provided to any candidate under any circumstances.
- (x) Candidates shall put a cross (×) on blank pages of Answer Script.
- (xi) No blank page be left in between answer to various questions.
- (xii) No programmable Calculator is allowed.
- (xiii) No stencil (with different markings) is allowed.

1. (a) What do you understand about climate change and its effects on farm productivity, environment, live stock and related resources and its implication on Indian agriculture ? 40

(b) Any **five** of the following to be described :

- (i) Mulching, its merits and demerits
- (ii) Good characteristics of inter crops
- (iii) Multistorey cropping system
- (iv) LEISA
- (v) Calculate the fertilizer requirement for rice for 1 ha in terms of Urea, DAP and MOP (Recommended dose for rice is 60 : 40 : 60 Kg N₁ P₂O₅ and K₂O/ha)
- (vi) Participatory Technology development.
- (vii) Role of KVK in technology transfer. 40

- (v) Zn status of Indian soils
- (vi) Diversified agriculture
- (vii) Forage and fodder crops.

(b) Describe the recent advances in agricultural technology communication and their utility under different situations in India with case studies if any. 55