

2009
AGRICULTURE- I (Optional)

100291

Standard : Degree

Total Marks : 200

Nature : Conventional

Duration : 3 Hours

Note :

- (i) Answers must be written in *English*.
- (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 *each* respective question.
- (iv) Number of optional questions upto *the* *marked* 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* *objective* writing.
- (vi) Candidate should not write roll number *or* name (including their own), signature, address or any indication of their identity anywhere in *the* answer book otherwise he/she 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) What are the cropping patterns followed in different Agro-climatic zones of Maharashtra ? How these can be modified with the resources available to increase the cropping intensity and productivity ? 10
- (b) How industrial effluents having variable chemical characteristics and metal contents prove harmful to soil and water environment ? 10
- (c) Define watershed. Briefly discuss watershed approach in planning soil and water conservation measures. 10
- (d) What is scope of floriculture in Maharashtra ? What are the basic principles in growing flowers in Green House and Poly House ? 10
- (e) Enumerate horticultural crops and trees grown in peninsular region of Maharashtra. What is scope of value added products of vegetables and fruits ? 10

P.T.O.

SECTION - A

2. Answer the following sub-questions :

- (a) Enlist the climatic factors and their respective effect on crop growth and development. 10
- (b) Discuss the integrated management of weeds associated with wheat and *rabi* pulses 10
- (c) Suggest the improved package of practices for increased production of sugarcane. 10
- (d) What are the objectives of tillage ? How tillage is influenced by various factors ? 10

3. Answer the following sub-questions :

- (a) How ecological balance is maintained by natural resources ? What are the effects of ecology on crop production ? 10
- (b) What is organic farming ? What are its beneficial effects on crop production and soil fertility ? 10
- (c) What are the package of practices followed in growing *rabi* pulses and oil seeds in the state of Maharashtra ? 10
- (d) What is tillage ? Suggest implements for tilling the land particularly in rain-fed farming. 10

SECTION - B

4. Answer the following :

- (a) Briefly give an account of active and passive factors of soil formation. How climate being an active factor, controls soil development and physical and chemical properties of soils ? 15
- (b) Explain the distinction between geologic erosion and accelerated erosion. What type of soil conservation measures would you suggest for controlling erosion and run off in hilly areas ? 10
- (c) Give the criteria propounded by Arnon and stout for an element, regarded as an essential element. Name essential macro and micronutrients. Discuss functions and deficiency symptoms of Nitrogen and Phosphorus. 15

Marks

5. Answer the following :

- (a) (i) What is soil classification ? Give an account of some early systems of soil classification. 6
- (ii) Why the "Black Cotton Soils" of Maharashtra are placed under Soil Taxonomic Order - vertisols ? Give its salient characteristics, land use and constraints. 9
- (b) Give classification (types) of salt - affected soils. Under what conditions these soils are formed ? Name chemical amendments required for amelioration of alkali/sodic soils. 10
- (c) State in brief various organic manures that are most important and widely used. Explain their effect on soil properties and plant growth. 15

SECTION - C

6. Answer the following :

- (a) Briefly explain the term - water use efficiency. How it can be achieved ? 10
- (b) What is sprinkler irrigation method of water application ? Under what situation it is followed ? Mention its advantages and disadvantages. 10
- (c) (i) Briefly mention different mechanical power transmitting methods of agricultural machineries. 5
- (ii) What is threshing ? List common methods of threshing. 5
- (d) (i) Explain the term farm product processing with examples. 5
- (ii) Write in brief about - Ginning of cotton ; Shelling and Hulling of paddy. 5

7. Answer the following :

- (a) What is plant available water ? Explain soil moistures/water constants relating to it. 10
- (b) (i) Mention various parameters used to judge Quality of irrigation water. 5
- (ii) Out line criteria for scheduling irrigation. 5
- (c) What is tillage ? What are its objectives ? Name tillage implements commonly used for primary and secondary tillage. 10
- (d) Briefly explain the operations - Sugarcane processing, Groundnut processing, Grain drying and Pasturization. 2.5x4=10

P.T.O.

SECTION - D

8. Answer the following sub-questions :
- (a) Explain the scope of growing fruits, vegetables and flowers for domestic and export market in Maharashtra. 10
 - (b) Describe the roles of fruits and vegetables in human nutrition. 10
 - (c) Enlist the important medicinal and aromatic plants being grown in India. What is export scope of these plants ? 10
 - (d) What is social forestry ? Is it different from Agro-Forestry ? Discuss the scope of social forestry in India. 10
9. Answer the following sub-questions :
- (a) What is preservation ? What are the procedures to preserve fruits and vegetables ? 10
 - (b) What is nutritional value of mushroom ? Describe its package of production practices. 10
 - (c) Discuss the types of agro-forestry and their relevance to the need of rural community. 10
 - (d) Enumerate the multipurpose tree species that are being grown in agro-forestry system. 10

- o O o -