

2012

AGRICULTURE (Optional)

कृषि (वैकल्पिक)

100701

Time : 3 hours

Maximum Marks : 200

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) Figure to the RIGHT indicates 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) Candidates should not write roll number, any name (including their own), signature, address or any indication of their identity anywhere inside the answer book otherwise they will be penalised.

1. Answer any four of the following :

- (a) What are the major fruit and vegetable crops grown in Maharashtra ? Explain in brief the cultivation of export oriented two fruit and two vegetable crops. 10
- (b) What are the leguminous and non leguminous fodder crops and perennial grasses ? Give examples. Describe in detail the methods of preservation of fodder crops. 10
- (c) What is the active role and impact of private sector in seed production, processing and marketing in Maharashtra ? Restrict your focus on major crops. 10
- (d) List important diseases of citrus in the state. Describe the disease symptoms, nature of damage and their management. 10
- (e) What is the scope of fruit processing in Maharashtra ? For what purpose are the grapes processed ? Explain the methods of processing. 10

SECTION - A

2. Answer the following questions :

- (a) What is organic farming ? Explain in brief the principles involved in organic farming. Also mention the advantages and disadvantages of organic farming. 20
- (b) Explain in brief the various environmental pollutants. How are they hazardous to crops, animals and human beings ? Elaborate it with suitable examples. 20

3. Answer the following questions :

- (a) What do you understand by sustainable agriculture ? Differentiate between modern and sustainable agriculture. Also discuss the problems of modern agriculture. 20
- (b) Enlist the various aberrant weather conditions that affect the crop production. Discuss the different agronomic practices that will be helpful in managing the aberrant weather conditions. 20

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SECTION - B

4. (a) Answer the following questions : 4+4+4+4+4=20
- (i) Differentiate between bulk density and particle density of soil and derive an equation for determination of soil porosity using these two parameters.
 - (ii) What are the factors of soil formation ? Differentiate between laterization and podzolization.
 - (iii) Briefly mention the role of organic matter in maintenance of soil health.
 - (iv) Define soil fertility and state the objective of soil fertility evaluation. Give a list of diagnostic techniques for soil fertility assay.
 - (v) Define critical soil test value and state how it is commonly determined by soil testing laboratories of the country.
- (b) Elaborate different systems of irrigation. Also explain the system of irrigation best suited for hilly terrain with suitable justification. 20
5. (a) Answer the following questions : 4+4+4+4+4=20
- (i) Mention the causes of formation of acid soils in humid regions.
 - (ii) What are the constraints of soil acidity on crop production ?
 - (iii) What is calcium carbonate equivalent of liming material ? Explain how it is determined for $\text{Ca}(\text{OH})_2$.
 - (iv) What are the factors affecting the efficiency of liming materials to correct soil acidity ?
 - (v) Differentiate between saline and sodic soils and define leaching requirement.
- (b) Discuss the present status and future scope of Farm Mechanization in Maharashtra. 20

SECTION - C

6. Answer the following questions :
- (a) Define polyploidy and write its types. What is the role of allopolyploidy in evolution of various crop species, cite examples. 10
 - (b) Define transpiration and indicate the techniques used to measure transpiration. Explain the theory behind each technique. 10
 - (c) What do you understand by a farm plan ? Only name the steps in farm planning. Also mention the attributes of a good farm plan. 20
7. Answer the following questions :
- (a) What are transgenics ? Elaborate the role of transgenics in crop improvement and also cite some successful examples. 10
 - (b) Explain the action of auxin on cellular enlargement through increase in cell wall plasticity. Why do auxins inhibit the growth of lateral buds but not that of the apical bud ? 10
 - (c) Name the various types and systems of farming. Give the advantages of diversified farming. 20

SECTION - D

8. (a) Answer the following questions :
- (i) Write rationale behind privatization in Agricultural Extension. List out possible stake holders in private extension. 10
 - (ii) State and explain PRA techniques to initiate people's participation in rural development. 10
- (b) Write a note on the use of chemicals for management of plant diseases. How plant disease forecasting can be helpful in efficient use of chemicals ? Write a note on the biological control of plant diseases. 20
9. (a) Answer the following questions :
- (i) Explain the functioning of ATMA by drawing its organizational structure and quoting specific objectives. 10
 - (ii) Describe Warna Wired Village and Vasundhara Vahini Projects (VIIT) in Maharashtra. 10
- (b) Purple blotch is a very serious disease of onion. Mention its causal organism, disease symptoms, disease cycle and control measures. 20

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