

Question Paper Code : 6050

M.Sc. (Ag.) (Semester-I) Examination, 2017

HORTICULTURE

[First Paper]

(Tropical and dry land Fruit Production - 501)

Time : Three Hours]

[Maximum Marks : 50

Note : Attempt **five** questions in **all**, question **No.1** is **compulsory**. Beside this, answer **one** question from each unit.

1. Describe the following : [2x10=20]
- (a) Black tip of mango
 - (b) Polyembryony
 - (c) Rootstocks in citrus
 - (d) Fusarium wilt of banana
 - (e) Two popular varieties of guava
 - (f) Soft wood grafting

- (g) Micropropagation
- (h) Pruning of Phalsa
- (i) Bahar regulation in pomegranate
- (j) Gynodioocious varieties of papaya

UNIT-I

2. Write short notes on any two of the following : [8]
- (a) Mango malformation
 - (b) Guava wilt
 - (c) Nutrient management in tissue culture banana

3. Describe Fruit drop in mango in detail. [8]

UNIT-II

4. Write short notes on **any two** of the following : [8]
- (a) High density planting of citrus and its advantages.
 - (b) Rootstocks suitable for high density system in citrus.
 - (c) Rootstock used for kinnow.

5. Describe in detail the nutrient and irrigation management in guava. [8]

UNIT-III

6. Discuss the propagation and use of growth regulators in pineapple. Name two varieties of pineapple. [7]
7. Write short notes on the following :
- (a) Bael propagation and varieties [4]
 - (b) Maturity and harvesting of avocado [3]

UNIT-IV

8. Write short notes on the following :
- (a) Pruning in Ber. [4]
 - (b) Physiological disorder in pomegranate. [3]
9. Describe the production technology of Aonla with special reference to propagation and plant protection. [7]

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Question Paper Code : 6051

M.Sc. (Ag.) (Semester-I) Examination, 2017

HORTICULTURE

[Second Paper]

(Production Technology of Warm Season
Vegetable Crops)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all** including Question **No. 1** which is **compulsory**. Beside this, attempt **one** question from each of the **four** units.

1. Explain/Define : [10x2 = 20]
- (a) AICVIP
 - (b) IIHR
 - (c) AVRDC
 - (d) Avinash II
 - (e) Pusa sadabahar
 - (f) Vegetable export from India

- (g) Auxins
- (h) TL seed
- (i) Origin of chilli
- (j) California wonder

UNIT-I

- 2. Write a detailed note on a National Research Institute dealing with sweet potato in India. [8]
- 3. Write a detailed note on an International Research Institute dealing with sweet pepper. [8]

UNIT-II

- 4. Describe improved cultivars of French bean. [8]
- 5. Describe improved cultivars of cowpea. [8]

UNIT-III

- 6. How to produce hybrid seed of bottlegourd ? [7]
- 7. How to produce hybrid seed of cucumber ? [7]

UNIT-IV

- 8. Describe production technology of amaranth. [7]
- 9. Describe production technology beet leaf (Palak). [7]

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Question Paper Code : 6052

M.Sc. (Ag.) (Semester-I) Examination, 2017

HORTICULTURE

[Third Paper]

(Landscaping and Ornamental Gardening)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all** including Question No. 1 which is **compulsory**. Attempt **one** question from each of the **four** units.

1. Describe briefly the following : [2x10=20]
- (a) Budha garden
 - (b) Landscaping
 - (c) Winter ornamental plants
 - (d) Mughal garden
 - (e) Xeri-scaping
 - (f) Plants cultivated for hedges
 - (g) Cuttings

- (h) Flower borders
- (i) Shrubbery
- (j) 2,4-D

UNIT-I

2. What is landscape designing ? Write your answer with suitable examples of various types of landscape designs. [8]
3. Write short notes on any two of the following : [8]
 - (a) Various types of gardens
 - (b) Gardening tools and growth regulators
 - (c) Benefits of gardening

UNIT-II

4. Describe the urban landscaping. Also write about the landscaping in different institutes. [8]
5. Write notes on the following : [8]
 - (a) Traffic islands
 - (b) Landscaping in hospitals

UNIT-III

6. Write about various garden plant components with suitable examples. [7]
7. Write short notes on the following :
 - (a) Various techniques used in production of ornamental plants [4]
 - (b) Cacti and succulent [3]

UNIT-IV

8. Describe the establishment and management of roof garden with their advantages. [7]
9. Write short notes on the following :
 - (a) Hard-scaping [4]
 - (b) Rock garden of Chandigarh and its special features [3]

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Question Paper Code : 6053

M.Sc. (Ag.) (Semester-I) Examination, 2017

HORTICULTURE

[Fourth Paper]

(Insect Pests of Fruits, Vegetables, Spices and Medicinal Plants)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all** including Question No. 1 which is **compulsory**. Beside this, attempt **one** question from each of the **four** units.

1. Describe briefly the following : [2x10=20]
- (a) Biopesticides
 - (b) Natural enemies
 - (c) Anar butterfly
 - (d) Apple woolly aphids
 - (e) Potato tuber moth
 - (f) Hairy caterpillar

- (g) Hadda beetle
- (h) Spodoptera litura
- (i) Painted bug
- (j) Management of stem borers

UNIT-I

2. Enumerate insect pests of Mango. Describe systematic position, identifying features, life cycle, nature of damage and management of any one of them. [8]
3. Write short notes on the following : [8]
 - (a) Banana stem borer
 - (b) Fruit fly

UNIT-II

4. Enlist insect pests of cucurbitaceous plants. Describe the life cycle, nature of damage and management of any one of them. [8]
5. Write short notes on the following : [8]
 - (a) Red pumpkin beetle

- (b) Biological control of aphids

UNIT-III

6. Enumerate insect pests of Turmeric. Describe the systematic position, identifying features, life cycle, nature of damage and management of any one them. [7]
7. Write short notes on the following :
 - (a) Onion thrips [4]
 - (b) Nature of damage and control measures of Lepidopteran pests [3]

UNIT-IV

8. Name the insect pests of Mentha. Describe the systematic position, life cycle, nature of damage and management of any one of them. [7]
9. Write short notes on the following :
 - (a) Jatropha pests and their management [4]
 - (b) Ashwagandha pests and their management [3]

Question Paper Code : 6055

M.Sc. (Ag.) (Semester-III) Examination, 2017

HORTICULTURE

[First Paper]

(Production Technologies for Medicinal and
Aromatic Crops)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all** including Question **No. 1**
which is **compulsory**. Attempt **one** question from each
of the **four** units.

1. Describe briefly the following : [2x10=20]
- (a) Classification of medicinal plant
 - (b) Indigenous traditional knowledge of medicinal plants
 - (c) Limiting factor for export of medicinal plants
 - (d) Phytochemical extraction techniques
 - (e) Maturity standard of rose

- (f) Propagation techniques of mentha
- (g) Aromatic plants
- (h) Disease management of poppy
- (i) Organic production of medicinal plants.
- (j) Pest management of desi rose

UNIT-I

2. Write in detail about the export and import of medicinal and aromatic plants. [8]
3. Write short notes on the following : [8]
 - (a) Advantage of organic production of medicinal plants
 - (b) IPR issues of medicinal plants in India

UNIT-II

4. Production technology of Ashwagandha. [8]
5. Write short notes on the following : [8]
 - (a) Improved varieties of Aloe vera and Sarpagandha
 - (b) Improved varieties of Periwinkle

UNIT-III

6. Write down in detail the post harvest handling of senna and safed musli. [7]
7. Write short notes on the following :
 - (a) History of Indian perfumery industry [4]
 - (b) Herbal products [3]

UNIT-IV

8. Describe in detail the production technology of lemongrass. [7]
9. Write short notes on the following :
 - (a) Varieties of patchouli and geranium [4]
 - (b) Varieties of astemesia and palmarosa [3]

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Question Paper Code : 6056

M.Sc. (Ag.) (Semester-III) Examination, 2017

HORTICULTURE

[Third Paper]

(Genetic Engineering and Biotechnology)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all** including Question **No. 1** which is **compulsory**. Beside this, attempt **one** question from each of the **four** units.

1. Describe briefly the following : [2x10=20]
- (a) Test cross
 - (b) Plasmid
 - (c) Regeneration
 - (d) Selective markers
 - (e) RAPD
 - (f) Double haploids

- (g) Genetic linkage
- (h) Transgenics
- (i) Direct DNA uptake
- (j) Recombinant DNA

UNIT-I

- 2. Give an account of different gene transfer techniques. [8]
- 3. Write short notes on the following : [8]
 - (a) Classification of Restriction Enzymes
 - (b) Steps in gene cloning

UNIT-II

- 4. Elaborate the applications of recombinant DNA technology in agriculture. [8]
- 5. Write notes on the following : [8]
 - (a) Mechanism of regulation in GM crops
 - (b) Biosafety issues of transgenic crops

UNIT-III

- 6. What is a mapping population ? Describe briefly the different types of mapping population. [7]
- 7. Write notes on the following : [7]
 - (a) RFLP and AFLP markers
 - (b) QTL analysis in crop plants

UNIT-IV

- 8. Briefly describe the technology developments in hybrid plant breeding. [7]
- 9. Write notes on the following : [7]
 - (a) Role of molecular markers in gene pyramiding
 - (b) PGR conservation and management

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Question Paper Code : 6057

M.Sc.(Ag.) (Semester-III) Examination, 2017

HORTICULTURE

[Fourth Paper]

(Diseases of Fruits and Ornamental Crops)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**. Question **No.1** is **compulsory**. Besides this, attempt **one** question from each unit.

1. Describe briefly the following : [2x10=20]
- (a) Fruit
 - (b) Shelf life
 - (c) Pest
 - (d) Anthracnose
 - (e) Canker
 - (f) Mosaic
 - (g) Rust

(h) Viral Disease Management

(i) IPM

(j) IPNM

UNIT-I

2. What is Symptomatology ? Describe in brief the life cycle of a fungal pathogen causing diseases in mango with its management. [8]
3. Differentiate between the following [8]
- (a) Life Cycle Vs Disease Cycle
- (b) Pathological Vs Physiological Disease

UNIT-II

4. Enlist the various types of plant diseases in Papaya. Describe the disease cycle and management of any one. [8]
5. Write short notes on the following : [8]
- (a) Biological management of Plant diseases
- (b) Wilt disease of Guava

UNIT-III

6. Enlist the major diseases of Rose. Describe the disease cycle of any one and its management practices. [7]
7. Write short notes on the following :
- (a) Wilt disease in Gladioli [4]
- (b) Anthracnose disease in Marigold [3]

UNIT-IV

8. What are the major constraints in post-harvest handling and storage (PHHS) in India ? [7]
9. Write short notes on the following :
- (a) Storage Pests [4]
- (b) Mycotoxin [3]

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Question Paper Code : 6058

M.Sc. (Ag.) (Semester-I) Examination, 2017

AGRICULTURE EXTENSION

[First Paper]

(Development Perspective of Extension
Education)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**. Question **No.1** which is **compulsory**. Attempt **one** question from each unit.

1. Answer briefly the following : [2x10=20]
- (a) Enlist the objectives of extension education.
 - (b) Briefly state the role of distance education in rural development.
 - (c) What are the main features of extension work in USA?
 - (d) Write a brief note on "teaching learning process".
 - (e) What is the idea underlying "Krishi Vigyan Kendras" ?

- (f) Write a brief note on "Farm Field School".
- (g) What are various problems of rural development in India ?
- (h) Write a note on MNREGA.
- (i) State the idea underlying "Bottom up Planning".
- (j) Write a brief note on "Role of State Agriculture Universities in extension education".

UNIT-I

- 2. Describe the principles and philosophy of agricultural extension. [8]
- 3. Critically examine the role of agricultural extension in rural development. [8]

UNIT-II

- 4. Give a historical account of extension efforts undertaken for the development of rural India. [8]
- 5. Describe in detail, the Chinese approaches to extension. [8]

UNIT-III

- 6. Enlist the current approaches to extension and discuss any one of them in detail. [7]
- 7. Examine the role of "Kisan Call Centres" and "Krishi Vigyan Kendras" in bringing agricultural innovations in U.P. [7]

UNIT-IV

- 8. Discuss underlying idea and functioning of CAPART. How has it impacted the rural population of Uttar Pradesh ?[7]
- 9. Critically examine the role and achievements of ICDS with regard to women's development in U.P. [7]

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Question Paper Code : 6059

M.Sc. (Ag.) (Semester-I) Examination, 2017

AGRICULTURE EXTENSION

[Second Paper]

(Development Communication and Information
Management)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**. Question **No.1** is **compulsory**. In addition, attempt **one** question from each unit.

1. Answer the following questions in brief : [2x10=20]
- (a) Discuss the purpose and utility of Communication.
 - (b) Elaborate the reasons for the distortion of a message in communication.
 - (c) Explain the term Communication gap by giving example.
 - (d) What do you mean by the term empathy? Discuss its role in communication.

- (e) Write down the characteristics of a good message.
- (f) Differentiate between verbal and non-verbal communication ?
- (g) What do you mean by effectiveness and credibility of communication ?
- (h) Discuss various elements of communication with the help of a block diagram.
- (i) What is fidelity in communication ?
- (j) " Visual communication is more effective than oral communication." Justify the statement by giving your views.

UNIT-I

- 2. (a) Discuss how feedback is effective in communication. [4]
- (b) Explain various types of communication by giving example of each. [4]

- 3. Compare and contrast various models of communication by giving the utility of each model. [8]

UNIT-II

- 4. What is communication ? Differentiate between various forms of Communication by giving examples of each. Also give the utility of non-verbal communication. [8]
- 5. Discuss the main ingredients of organisational communication. Also discuss its purpose. Explain how it is different from interpersonal communication. [8]

UNIT-III

- 6. (a) List various audio-visual aids used as innovative communication methods. [4]
- (b) What do you understand by extension teaching methods ? Also write its utility. [3]
- 7. (a) Discuss the role of extension teaching methods in communication along with its types. [4]
- (b) Write the factors which affect the selection of audio-visual aids. [3]

UNIT-IV

8. By giving suitable real-life examples, discuss the role of mass media in dissemination in farm technology. [7]
9. Describe the major requirements for effective Video conferencing. Explain how the modern communication technologies are impacting the life of rural people. [7]

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Question Paper Code : 6060

M.Sc. (Ag.) (Semester-I) Examination, 2017

AGRICULTURE EXTENSION

[Third Paper]

(Fundamentals of Rural Sociology)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**, including question **No.1** which is **compulsory**. Beside this, attempt **one** question from each unit.

1. Write short notes on each of the following : [2x10=20]

- (a) Social Group
- (b) Cultural Lag
- (c) Social Process
- (d) Emotion
- (e) Prejudice
- (f) Motivation

(g) Cultural change

(h) Society

(i) Social Interaction

(j) Social Values

UNIT-I

2. Define Rural Sociology. Explain its importance. [8]
3. What is community ? Explain broadline cases that appear to be a community. [8]

UNIT-II

4. What is Social Change ? Explain its factors. [8]
5. Define Social Stratification, Explain its forms. [8]

UNIT-III

6. Find out the patterns of leadership emerging in Indian rural society. [7]
7. Explain the main characteristics of a good leader. [7]

UNIT-IV

8. What is personality ? Explain the factors that affect personality. [7]
9. Define social perception. Find out the factors that affect one's perception. [7]

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Question Paper Code : 6061

M.Sc. (Ag.) (Semester-I) Examination, 2017

AGRICULTURE EXTENSION

[Fourth Paper]

(Agriculture Marketing and Price Analysis)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**, including question **No.1** which is **compulsory**. Beside this, attempt **one** question from each units.

1. Describe briefly the following : [2x10=20]
- (a) Nature of farm commodities
 - (b) Difference between agricultural and non-agricultural marketing
 - (c) Seasonal nature of agricultural marketing
 - (d) Marketing in national and international markets
 - (e) Agricultural mandis
 - (f) Distress sale of farm commodities

- (g) Buffer stocks
- (h) Forward trading
- (i) Impact of infrastructure on agricultural marketing.
- (j) Incentive price

UNIT-I

2. While elaborating upon the various natures of the farm produce, discuss the significance of agricultural marketing in a developing economy. [8]
3. Discuss the distinction between marketed and marketable surplus of the agricultural produce. Throw light on higher marketed surplus than the marketable surplus. [8]

UNIT-II

4. Who are the key players in agricultural marketing? How do different agencies affect the farm marketing adversely? [8]
5. Why is it necessary to develop regulated marketing in India? Under what circumstances regulated marketing become harmful to the farmers in India? [8]

UNIT-III

6. Critically examine the functions and significance of cooperative agricultural marketing in India. [7]
7. Write note on the following :
 - (a) Factors affecting marketing efficiency [4]
 - (b) Impact of import policies on commercial crops in India [3]

UNIT-IV

8. Discuss the role of agricultural price policies on price stability and agricultural production in India . [7]
9. Write notes on the following :
 - (a) Speculation and hedging in agricultural marketing [4]
 - (b) Role of agricultural marketing in food security [3]

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Question Paper Code : 6063

M.Sc. (Semester-III) Examination, 2017

AG. EXT.

[Second Paper]

[Human Resource Development (HRD)]

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in all. Question **No.1** is **compulsory**. Besides this, **one** question is to be attempted from each unit.

1. Describe briefly the following : [2x10=20]
- (a) ICAR
 - (b) Trainers
 - (c) Followup of training
 - (d) Relationship between training and education
 - (e) Interdisciplinary approach of HRD
 - (f) Planning in training
 - (g) SAUs

- (h) Monitoring training
- (i) Use of training
- (j) Need for HRD

UNIT-I

2. Write short notes on the following : [4×2=8]
- (a) Evaluation in training
 - (b) Designing in training
3. What do you mean by training ? Describe its Conceptual model in detail with suitable examples. [3+5=8]

UNIT-II

4. Enlist the training institutions in India and give detail of facilities available for training. [3+5=8]
5. How can you select a proper training method ? [8]

UNIT-III

6. What is meant by HRD ? Give its importance and priorities. [7]

7. What are the basic assumptions underlying HRD ? [7]

UNIT-IV

8. What is the HRD policy of Government of India ? Explain in detail with example. [7]
9. Enlist the state development departments and explain the role of NGOs in HRD. [7]

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Question Paper Code : 6064

M.Sc. (Ag.) (Semester-III) Examination, 2017

AGRICULTURE EXTENSION

[Third Paper]

(Diffusion and Adoption of Innovation)

Time : Three Hours]

[Maximum Marks : 50

Note : Attempt **all** questions. Question **No. 1** is **compulsory**.
each question carries **two** mark and attempt **one** question
from each unit.

1. Write short notes on the following : [2x10=20]
- (a) Diffusion
 - (b) Adoption
 - (c) Dispute
 - (d) Innovator
 - (e) Rankings
 - (f) Awareness

- (g) Local leadership
- (h) Decision
- (i) Agenda
- (j) Field visit

UNIT-I

2. Define Innovation. Write the characteristics of innovation in detail. [8]
3. Write short notes on the following : [4+4=8]
 - (a) Rate of adoption
 - (b) Write the factors affecting adoption process

UNIT-II

4. Write the meaning of Diffusion. Write the detailed process of Diffusion. [8]
5. Write short notes on the following : [4+4=8]
 - (a) Methods of communication
 - (b) Concept of diffusion

UNIT-III

6. Discuss the Homophily and Heterophily model of communication. [7]
7. Write short notes on the following : [3+4=7]
 - (a) Differentiate between homophily and heterophily
 - (b) Multi steps flow of innovation

UNIT-IV

8. What is Innovation ? Write the innovation decision process in detail. [7]
9. Write short notes on the following : [3+4=7]
 - (a) Anticipated consequences
 - (b) Contingent innovation decisions

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Question Paper Code : 6065

M.Sc.(Ag.) (Semester-III) Examination, 2017

AGRICULTURE EXT.

[Fourth Paper]

(International Trade)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**, including Question No. 1 which is **compulsory**. Attempt **one** question from each unit.

1. Write short notes on the following : [2x10=20]
- (a) Assumption of absolute advantage theory
 - (b) Purpose of trade liberalization
 - (c) Leontief paradox
 - (d) Opportunity cost theory
 - (e) Current account of BOP
 - (f) Need for International finance
 - (g) Functions of WTO

- (h) Impact of GATT on agricultural sector
- (i) Reason for disequilibrium in balance of trade
- (j) Factor endowment theory

UNIT-I

- 2. What do you understand by International trade ? Discuss the various competitive advantages and disadvantages of International trade. [8]
- 3. Define trade protection. Explain the various tariff and non-tariff measures adopted to promote International trade. [8]

UNIT-II

- 4. What are terms of trade ? Discuss the types of terms of trade along with their merits and demerits. [8]
- 5. Explain the term 'MNC'. Discuss the advantages and disadvantages to the host country. [8]

UNIT-III

- 6. Give an overview on the features of foreign exchange market along with their participants. [7]

- 7. Discuss in detail fiscal and monetary adjustments and how they affect International trade of a country ? [7]

UNIT-IV

- 8. What do you understand by International Monetary System ? Highlight major issues discussed in Bretton-woods conference with respect to world trade. [7]
- 9. What are trading blocks ? Explain the main features and objectives of trading blocks. [7]

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Question Paper Code : 6066

M.Sc. (Ag.) (Semester-I) Examination, 2017

AGRONOMY

[First Paper]

(Modern Concepts in Crop Production)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**, including Question **No. 1** which is **compulsory**. Attempt **one** question from each unit.

1. Describe briefly of the following : [2x10=20]
- (a) Adaptation and mitigation of climate change
 - (b) Carbon rating
 - (c) Abiotic stress
 - (d) Conservation agriculture
 - (e) Protective cultivation
 - (f) Precision farming

- (g) Site specific nutrient management
- (h) Economic optimum dose
- (i) Organic farming
- (j) Farming system

UNIT-I

2. Describe Agro-ecological zone of India with their importance. [8]
3. How can we mitigate the effect of climate change on crop productivity and soil health ? [8]

UNIT-II

4. Define mulch, its types and importance in soil and water conservation. [8]
5. Write short notes on of the following : [8]
 - (a) Soil fertility and soil productivity
 - (b) Zero tillage and minimum tillage
 - (c) Plant population and plant geometry

UNIT-III

6. What are biotic and abiotic stresses ? Describe the mitigation measure to these stresses through integrated approaches. [7]
7. Write short notes on the following : [7]
 - (a) Concept of ideal plant type
 - (b) Crop response production function

UNIT-IV

8. What is farming system research ? How it is helpful in sustaining agriculture production ? [7]
9. What are crop growth and yield contributing parameters of the following : [7]
 - (a) Rice
 - (b) Wheat

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Question Paper Code : 6067

M.Sc. (Ag.) (Semester-I) Examination, 2017

AGRONOMY

[Paper-AGRON-502]

(Agronomy of Major Field Crop)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**, including Question **No. 1** which is **compulsory**. Attempt **one** question from each unit.

1. Answer the following : [2x10=20]
- (a) Origin of maize
 - (b) Nursery preparation of paddy
 - (c) Bacterial blight of paddy
 - (d) Important variety of sorghum
 - (e) Ergot of bajara
 - (f) Important insects of maize
 - (g) Coarse and small millet

- (h) Nipping / Topping
- (i) Intercropping
- (j) Importance of pulses

UNIT-I

2. Write the origin, distribution, improved varieties, manuring and yield of paddy. [8]
3. Write short notes on **any two** of the following : [8]
 - (a) Seed treatment with fungicide
 - (b) Diseases of paddy
 - (c) Important varieties of pearl millet

UNIT-II

4. Write about pigeon pea under the following : [8]
 - (a) Botanical name and family
 - (b) Important varieties
 - (c) Intercropping
 - (d) Weed management

5. Write short notes on **any two** of the following : [8]
 - (a) Improved varieties of soyabean
 - (b) Constraints in oil seed production
 - (c) Threats to oil seed

UNIT-III

6. Write about cotton under the following :
 - (a) Botanical name and family [4]
 - (b) Important varieties [3]
7. Write short notes on the following :
 - (a) Phytohormones [4]
 - (b) Retting of jute [3]

UNIT-IV

8. Write about sugarcane under the following : [7]
 - (a) Family and origin
 - (b) Important varieties
 - (c) Plant protection

9. Write short notes on the following :

(a) Classification of Tobacco [4]

(b) Weed management in Tobacco [3]

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Question Paper Code : 6068

M.Sc. (Ag.) (Semester-I) Examination, 2017

AGRONOMY

[Third Paper]

(Tillage in Crop Production)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**, including Question **No. 1** which is **compulsory**. Attempt **one** question from each unit.

1. Describe the following in brief : [2x10 = 20]
- (a) Aeration of soil
 - (b) Effective root zone
 - (c) Bulk density and water moment in soil
 - (d) Primary tillage
 - (e) Puddling and its role
 - (f) Soil moisture conservation

- (g) Deep ploughing
- (h) Water holding capacity of soil
- (i) Tillage requirement
- (j) Excessive tillage and its harmful effects

UNIT-I

- 2. Write about the effects of agronomic practices on soil properties. [8]
- 3. Write short notes on the following : [8]
 - (a) Infiltration rates and its measurement
 - (b) Measurement of bulk density and root distribution pattern

UNIT-II

- 4. Write about concepts of zero tillage and minimum tillage in crop production. Also explain associated advantage of zero and minimum tillage. [8]
- 5. Write short notes on the following : [8]
 - (a) Soil compaction and hardpan
 - (b) Soil sickness and toxicity

UNIT-III

- 6. What is tillage, tillage types and implements ? Write briefly about the effect of tillage on root development. [7]
- 7. Write short notes on the following :
 - (a) Weed control through proper tillage [4]
 - (b) Tillage and decomposition of organic matter [3]

UNIT-IV

- 8. Write the principles of soil moisture conservation, its importance with increasing water scarcity. [7]
- 9. Write short notes on the following :
 - (a) Different types of mulch for crop production [4]
 - (b) Soil conservation [3]

----- x -----

Question Paper Code : 6069

M.Sc. (Ag.) (Semester-I) Examination, 2017

AGRONOMY

[Fourth Paper AGSS/501]

(Soil Fertility Management and Fertilizer Use)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**. Question **No. 1** is **compulsory**. Besides this, attempt **one** question from each unit.

1. Write short notes on the following : [2x10=20]
- (a) Alkaline soil
 - (b) Macronutrients
 - (c) Nutrient use efficiency
 - (d) Management of sodic soils
 - (e) Vermicomposting
 - (f) Sulphur and its role in plant

- (g) Biofertilizers
- (h) Soil Composition
- (i) Essential plant nutrients
- (j) Determination of organic matter in soil

UNIT-I

- 2. Describe soil fertility. Discuss deficiency symptoms of macro and micro nutrients in plants. [8]
- 3. Write short notes on the following : [8]
 - (a) Soil productivity
 - (b) Toxicity symptoms of micronutrients.

UNIT-II

- 4. What are chemical fertilizers ? Describe the methods of fertilizer application. [8]
- 5. Write short notes on the following : [8]
 - (a) Chemical composition of urea, potash and phosphate fertilizers
 - (b) Fertilizer use efficiency

UNIT-III

- 6. What do you mean by INP ? Give different methods for integrated use of plant nutrients. [7]
- 7. Write short notes on the following :
 - (a) Nutrient interactions [4]
 - (b) Organic manures [3]

UNIT-IV

- 8. Describe crop residues and inorganic fertilizers. How they are related in sustainable agriculture. [7]
- 9. Write short notes on the following :
 - (a) Soil moisture nutrient interactions [4]
 - (b) Determination of potash in plants [3]

----- X -----

Question Paper Code : 6071

M.Sc. (Semester-III) Examination, 2017

AGRONOMY

[Second Paper]

(Principles and Practices of Weed Management)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in all. Question **No.1** is **compulsory**. Besides this, **one** question is to be attempted from each unit.

1. Describe briefly the following : [2x10=20]
- (a) Aquatic and parasitic weeds
 - (b) Weed indices
 - (c) Herbicide selectivity
 - (d) Herbicide resistance
 - (e) Herbicide mixtures
 - (f) Mycoherbicides

- (g) Allelochemicals
- (h) Management of weed in non-cropped areas
- (i) Precautions in use to herbicide
- (j) History of herbicide use

UNIT-I

2. Describe in detail the classification and characteristic of weeds. [8]
3. Write short notes on the following : [8]
 - (a) Major weeds problem in India
 - (b) Management strategies of parthenium

UNIT-II

4. Describe in detail the principle and methods of weed control. [8]
5. Write short notes on the following : [8]
 - (a) Integrated weed management
 - (b) Allelopathic effect of weeds

UNIT-III

6. Describe the development and classification of herbicide and their mode of action. [7]
7. Write short notes on the following :
 - (a) Bio-herbicides [4]
 - (b) Adjuvant and softeners [3]

UNIT-IV

8. Write in detail the management practices of Phalaris minor (Gaheun Ka Mama) weed in wheat crop. [7]
9. Write short notes on the following :
 - (a) Weed management strategies in Paddy. [4]
 - (b) Harbicide effect on environment. [3]

----- x -----

Question Paper Code : 6072

M.Sc. (Ag.) (Semester-III) Examination, 2017

AGRONOMY

[Third Paper]

(Dry Land Farming)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**, including Question **No. 1** which is **compulsory**. Beside this, attempt **one** question from each unit.

1. Describe briefly the following : [2x10=20]
- (a) Antioxidative enzymes
 - (b) NICRA
 - (c) Mandate of CRIDA
 - (d) Odorex
 - (e) Growth retardant
 - (f) Humid zone

- (g) Atacama desert
- (h) Rooftop rain water harvesting
- (i) Importance of mulching
- (j) IVLP

UNIT-I

2. Define Dry Land Farming ? Write the characteristics and concept of Dry Land Farming. [8]
3. Write short notes on **any two** of the following : [8]
 - (a) Significance of Dry Land Farming in India
 - (b) Write the drought management strategies
 - (c) Write the major causes of Drought

UNIT-II

4. Write the importance of water harvesting. Discuss the concept and techniques of water harvesting. [8]
5. Write short notes on **any two** of the following : [8]
 - (a) Crop management for aberrant weather conditions

- (b) Rain deficit moisture stress management of field crop
- (c) Dry Land area in India

UNIT-III

6. Define Mulching. Write the economic importance of mulching in agriculture crops. [7]
7. Write short notes on the following : [7]
 - (a) Type of mulching
 - (b) Importance of watershed management

UNIT-IV

8. Define Tillage. Write the time and methods of tillage in improving crop production. [7]
9. Write short notes on the following : [7]
 - (a) Importance of Antitransparent
 - (b) Drought resistant varieties

----- X -----

Question Paper Code : 6073

M.Sc. (Semester-III) Examination, 2017

AGRONOMY

[Fourth Paper]

(Seed Production Techniques in Field Crops)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all** including Question **No. 1** which is **compulsory**. Attempt **one** question from each unit.

1. Describe briefly the following : [10x2 = 20]
- (a) Disease sick plot
 - (b) Detasseling
 - (c) Vegetable gardens
 - (d) Presowing seed treatment
 - (e) Pureline selection in seed production
 - (f) Floral biology of cotton

- (g) Seed production technique in brinjal
- (h) Top dressing
- (i) Double fertilization
- (j) Optimum manurial requirement in wheat

UNIT-I

2. Describe in brief the different agronomical practices for seed production in wheat and its pest management. [8]
3. Write short notes on the following : [8]
 - (a) Fibre crops
 - (b) Disease and insect-pest management in 'Arhar'

UNIT-II

4. What are different seed producing organizations in country and their role in seed quality maintenance ? [8]
5. Write short notes on the following : [8]
 - (a) Crop rotation
 - (b) Seed production technique in cauliflower

UNIT-III

6. What is hybrid seed ? Define the hybrid seed production in maize. [7]
7. Write short notes on the following :
 - (a) Seed dormancy [4]
 - (b) Pollination in 'Lauki and production of its pure seeds [3]

UNIT-IV

8. Describe in brief the necessary steps to maintain purity and quality of improved variety. [7]
9. Write short notes on the following :
 - (a) Seed testing and seed certification [4]
 - (b) Stored grain pest and their management [3]

----- x -----

Question Paper Code : 6074

M.Sc. (Ag.) (Semester-I) Examination, 2017

SOIL SC. & AGRICULTURE CHEMISTRY

[First Paper]

(Soil Chemistry)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**, including question **No.1**, which is **compulsory**. Beside this, attempt **one** question from each unit.

1. Describe the following briefly : [2x10=20]
- (a) Chemical formula and composition of quartz, feldspar and Gypsum.
 - (b) Primary and secondary minerals of the soil.
 - (c) Soil colloids
 - (d) Layer silicate clays
 - (e) Cation exchange

- (f) Elements constitute over 99% of the Earth's crust.
- (g) Classification of clay minerals
- (h) Identification of clay minerals
- (i) pH
- (j) Titrimetric determination of calcium in ground water.

UNIT-I

- 2. Derive the expression for the rate constant from thermodynamic consideration. [8]
- 3. Draw the rate law second order 2A-P reaction. How will you test the rate law graphically? [8]

UNIT-II

- 4. Describe the Gibbs free energy. [8]
- 5. Give the methods of water applications during leaching. [8]

UNIT-III

- 6. Discuss the significance of buffering capacity of the soil. [7]

- 7. Write short notes on the following :

- (a) Acid soils [4]
- (b) Acidifying fertilizers [3]

UNIT-IV

- 8. Explain the interaction between soil organic matter and soil clay minerals by controlled addition of organic matter. [7]

- 9. Write short notes on the following :

- (a) Sodic soil [4]
- (b) Acid sulphate soil [3]

----- X -----

Question Paper Code : 6075

M.Sc. (Ag.) (Semester-I) Examination, 2017

SOIL SCIENCE & AGRICULTURE CHEMISTRY

[Second Paper]

(Soil Fertility and Plant Nutrition)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all** including Question No. 1 which is **compulsory**. Beside that, attempt **one** question from each unit.

1. Briefly describe the following : [2x10=20]
- (a) Essential elements
 - (b) Criteria for essentiality
 - (c) Hydroponics
 - (d) Whiptail of cauliflower
 - (e) Relative water content
 - (f) Carry over effects

- (g) Secondary nutrients
- (h) Role of phosphorus in plants
- (i) Soil evaluation testing
- (j) Balanced use of nutrients

UNIT-I

2. Discuss the concept of soil fertility and the factors affecting it. [8]
3. Write short notes on the following : [8]
 - (a) Beneficial elements
 - (b) Trace elements

UNIT-II

4. What are micronutrients ? Describe their importance in plant growth. [8]
5. Write short notes on the following : [8]
 - (a) Deficiency symptoms of magnesium
 - (b) Nutrient deficiency amelioration by foliar spray

UNIT-III

6. Define Integrated Plant Nutrient Management (IPNM) in plants. Describe its importance. [7]
7. Write short notes on the following :
 - (a) Nutrient water interactions [4]
 - (b) Role of potassium in stomatal opening [3]

UNIT-IV

8. What do you mean by soil fertility ? Discuss the soil fertility evaluation and its relation with crop yield. [7]
9. Write the short notes on the following :
 - (a) Facilitated diffusion [4]
 - (b) Nutrient release [3]

----- x -----

Question Paper Code : 6076

M.Sc. (Ag.) (Semester-I) Examination, 2017

SOIL SCIENCE AND AGRICULTURE CHEMISTRY

[Third Paper]

(Management of Problem Soils and Water)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all** including Question **No. 1** which is **compulsory**. Beside this, attempt **one** question from each unit.

1. Describe briefly the following : [2x10=20]
- (a) Saline soil
 - (b) Dry land
 - (c) Fertility soil
 - (d) Area under sodic soil
 - (e) Electrical conductivity
 - (f) Red lateritic soil

- (g) High RSC water
- (h) Ravine soil
- (i) Dry land farming
- (j) Kankar pan

UNIT-I

- 2. What are sodic soil ? How they can be reclaimed ? [8]
- 3. Write short notes on the following : [8]
 - (a) Gypsum requirement
 - (b) pH of soil

UNIT-II

- 4. What are salt tolerant crops ? Describe their characteristic features. [8]
- 5. Write short notes on the following : [8]
 - (a) Management limit of sodic soil
 - (b) Management principles of sandy soil

UNIT-III

- 6. What are acidic soils ? Describe their management practices. [7]
- 7. Write short notes on the following :
 - (a) Biological sickness of soils and their management [4]
 - (b) Lime requirement for acid soils [3]

UNIT-IV

- 8. What are waterlogged soils ? Describe their management. [7]
- 9. Write short notes on the following :
 - (a) Drainage coefficient [4]
 - (b) Water use quality in irrigation [3]

----- X -----

Question Paper Code : 6077

M.Sc. (Ag.) (Semester-I) Examination, 2017

SOIL SCIENCE AND AGRICULTURE CHEMISTRY

[Fourth Paper : AGR-502]

(Principles and Practices of Soil Fertility and
Nutrient Management)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all**, including Question No. 1
which is **compulsory**. Attempt **one** question from each
unit.

1. Describe briefly the following : [2x10=20]
- (a) Soil organic matter
 - (b) Integrated nutrient management
 - (c) NADSP composting
 - (d) Crop residue management
 - (e) Nutrient interactions

- (f) Nitrogen cycle
- (g) Fertilizer mixture
- (h) Soil productivity
- (i) Organic manures
- (j) Mycorrhiza

UNIT-I

2. Describe essential plant nutrients with their functions and optimum range in soil for good fertility. [8]
3. Write short notes on the following : [8]
 - (a) Carbon cycle
 - (b) Cations and anions

UNIT-II

4. Describe the methods of farmyard manure preparation, their composition and importance in crop productivity. [8]
5. Write short notes on the following : [8]
 - (a) Composting methods

- (b) Nitrification and nitrate losses

UNIT-III

6. What are commercial fertilizers ? Describe their nutrients composition. [7]
7. Write short notes on the following :
 - (a) Fertilizer use efficiency [4]
 - (b) Cereal crop responses to nitrogen treatment [3]

UNIT-IV

8. Describe the manure and fertilizer application schedules and techniques. [7]
9. Write short notes on the following :
 - (a) Relative performance of organic and inorganic manures [4]
 - (b) Determination of soil organic carbon [3]

----- x -----

Question Paper Code : 6079

M.Sc. (Ag.) (Semester-III) Examination, 2017

SOIL SCIENCE & AGRICULTURE CHEMISTRY

[Second Paper]

(Agricultural Biochemistry)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all** including Question **No. 1** which is **compulsory**. Attempt **one** question from each unit.

1. Write short answers of the following : [2x10=20]
- (a) Differentiate between autotrophic and heterotrophic organisms.
 - (b) Name the water soluble and fat soluble vitamins.
 - (c) Give two examples of auxins.
 - (d) Draw a labelled structure of chloroplast.
 - (e) Name the two components of starch.

- (f) Draw the structure of cholesterol.
- (g) What are alkaloids ?
- (h) Light harvesting chlorophyll protein complexes (LHCPs).
- (i) Diseases caused by the deficiency of ascorbic acid and vitamin D.
- (j) Essential amino acids.

UNIT-I

- 2. Discuss the importance of primary nutrients in plants. [8]
- 3. Explain the primary and secondary growth in plants with suitable diagrams. [8]

UNIT-II

- 4. Draw the glycolytic pathway of glucose breakdown and its importance in biological system. [8]
- 5. Draw a labeled structure of DNA double helix. Name the nitrogenous bases and sugar present in DNA and RNA. [8]

UNIT-III

- 6. Discuss the antibacterial properties of monoterpenes and its importance. [7]
- 7. Explain the antimalarial, antiasthma, anticancer and antibacterial properties of alkaloids. [7]

UNIT-IV

- 8. How does chlorophyll play an indispensable role in photosynthesis ? [7]
- 9. Explain the functions of auxins in plants in relation to root initiation, apical dominance and weed control. [7]

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Question Paper Code : 6080

M.Sc. (Ag.) (Semester-III) Examination, 2017

SOIL SCIENCE AND AGRICULTURE CHEMISTRY

[Third Paper]

(Soil Survey and Land Use Planning)

Time : Three Hours]

[Maximum Marks : 50

Note : Answer **five** questions in **all** including Question **No. 1** which is **compulsory**. Attempt **one** question from each unit.

1. Describe briefly the following : [2x10=20]
- (a) Soil types
 - (b) Aerial photograph
 - (c) Aerial photo interpretation
 - (d) Abstraction of maps
 - (e) Non-agricultural usage of soils
 - (f) Soil survey

- (g) Geographical information system
- (h) Agrotechnology
- (i) Map scale
- (j) Landscape for mountain farming

UNIT-I

- 2. What are the typical survey procedures ? Enumerate giving proper examples. [8]
- 3. What is the utility of Aerial photographs ? Explain. [8]

UNIT-II

- 4. How soil maps are prepared ? Explain giving neat sketches. [8]
- 5. What do you understand by map scales ? Explain giving examples. [8]

UNIT-III

- 6. What are the major criteria for soil co-relation ? Explain. [7]

- 7. What is the role of soil resource information system in upgrading the agricultural technology ? Explain. [7]

UNIT-IV

- 8. How GIS can help in resource inventorilization ? Explain. [7]
- 9. What do you understand by Benchmark soils ? [7]

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Question Paper Code : 6081

M.Sc. (Semester-III) Examination, 2017

SOIL SC. & AGRICULTURE CHEMISTRY

[Fourth Paper]

(Agricultural Pesticides)

Time : Three Hours]

[Maximum Marks : 50

Note : Attempt **five** questions in **all** including Question **No.1** which is **compulsory**. Attempt **one** question from each unit.

1. Describe briefly the following : [10x2=20]
- (a) 2, 4-D
 - (b) Banned insecticide
 - (c) Inhibitors of acetylcholinesterase
 - (d) Y-isomer of 1,2,3,4,5,6-hexachloro-cyclohexane
 - (e) Two pesticide industries located in India
 - (f) Differentiate between fungicide and weedicide

- (g) Classification of rodenticides
- (h) Biologically useful nutrients in tomato
- (i) Detectable pigments in spinach
- (j) Natural insecticides and fungicides

UNIT-I

2. (a) Essence of pesticides use in modern agriculture with advantages and disadvantages. [4]
- (b) Define pesticide [4]
3. Write short notes on the following : [8]
- (a) Pesticide equipments
 - (b) Quality control of pesticide formulations

UNIT-II

4. Write short notes on the following : [8]
- (a) Chemical structure of malathion and its mode of action
 - (b) Insect growth regulators

5. Write short notes on the following : [8]
- (a) Insecticide formulations
 - (b) Botanical insecticides

UNIT-III

6. (a) Specify the vegetables and other crops where nematicides find greater applications. [4]
- (b) Mode of action of some fungicides of your own choice. [3]
7. Write short notes on the following :
- (a) Name and chemical structure of important nematicides [4]
 - (b) Scientific methods for the collection of different type of pesticides [3]

UNIT-IV

8. Write short notes on the following :
- (a) Antidotes available against the insecticide poisoning [4]
 - (b) Insecticides used in farming [3]

9. Write short notes on the following :

- (a) Insecticide Act [4]
- (b) Preservation of important crop seeds for sowing purposes [3]

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