

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : IV (New)	Term : II	Academic Year : 2016-17
Course No. : AGRO 247	Title : Field Crops – II (Rabi Crops)	
Credits : 3 (2+1)	Time : 14.00 to 17.00	Total Marks : 80
Day & Date : Thursday, 04.05.2017		

- Note :**
1. Solve **ANY EIGHT** questions from **SECTION "A"**.
 2. All questions from **SECTION "B"** are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1 Describe in detail the cultivation practices of *Suru* Sugarcane with respect to.
- 1) Land preparation
 - 2) Seeds and sowing
 - 3) Weed management
 - 4) Nutrient management
- Q.2 Describe in detail the cultivation practices of Chickpea with respect to.
- 1) Seeds and sowing
 - 2) Improved varieties
 - 3) Weed management
 - 4) Pest and disease management
- Q.3 Explain in detail the cultivation of Potato with respect to.
- 1) Soil and climate
 - 2) Seeds and sowing
 - 3) Earthing up
 - 4) Harvesting and yield
- Q.4 Prepare a leaflet on the cultivation of Sunflower.
- Q.5 Write in detail the cultivation of Irrigated Wheat on following points:-
- 1) Soil and climate
 - 2) Seeds and sowing
 - 3) Fertilizer management
 - 4) Irrigation management
- Q.6 Write down the cultivation of *Rabi* Sorghum on following points:-
- 1) Soil and climate
 - 2) Seeds and sowing
 - 3) Fertilizer management
 - 4) Harvesting and yield
- Q.7 Describe in detail the cultivation practices of Mustard on following aspects :-
- 1) Soil and climate
 - 2) Seeds and sowing
 - 3) Fertilizer management
 - 4) Pest and disease management
- Q.8 Describe in detail the cultivation practices of Linseed on following aspects :-
- 1) Soil and climate
 - 2) Seeds and sowing
 - 3) Fertilizer management
 - 4) Pest and disease management
- Q.9 Write in short the cultivation of forage Maize.

(P.T.O)

Q.10 Write short notes (Any Two).

- 1) Malting in Barley.
- 2) Malic acid and collection from Chickpea.
- 3) Importance of pulses in agriculture.

SECTION "B"

Q.11 Fill in the blanks.

- 1) Sugarbeet belongs to the family _____.
- 2) _____ is the botanical name of Potato.
- 3) _____ is the root parasitic weed of Jowar.
- 4) Sponginess in Wheat is due to presence of _____ protein.
- 5) Seed rate of Oat is _____ kg/ ha.
- 6) Pre-seasonal Sugarcane is planted in the months of _____.
- 7) African Tall is the popular variety of _____.
- 8) Flowering in Sugarcane is termed as _____.

Q.12 Complete the following table.

Sr.No.	Crop	Botanical Name	Seed Rate (Kg/ ha)
1)	Barley		
2)	Lentil		
3)	Linseed		
4)	Berseem		

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : IV (New)	Term : II	Academic Year : 2016-17
Course No. : ASDS 242	Title : Livestock Breeding and Nutrition	
Credits : 2 (1+1)	Time : 14.00 to 16.00	Total Marks : 40
Day & Date : Wednesday, 03.05.2017		

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1 Define Roughages. Write in detail classification of roughages with suitable examples.
- Q.2 Enlist systems of animal breeding and explain crossbreeding.
- Q.3 Define gene. Explain the gene actions useful in animal breeding.
- Q.4 Write short notes (Any Two).
- 1) Performance testing
 - 2) Laws of segregation
 - 3) Gene mutations
- Q.5 Give difference between mitosis and meiosis.
- Q.6 Write functions of water in animal body.
- Q.7 What are feeding standards? Write the advantages of feeding standards.
- Q.8 Describe chemical composition of plant and animal body.
- Q.9 Explain chromosomal aberrations responsible for variation.
- Q.10 Explain digestion of carbohydrates in ruminants.

SECTION "B"

- Q.11 Define the following terms.
- 1) Zygote
 - 2) Locus
 - 3) Cytology
 - 4) ME
- Q.12 Fill in the blanks.
- 1) _____ is a structural and functional unit of all living organism.
 - 2) The somatic chromosome number of cattle is _____.
 - 3) The triple cross between HF, Jersey and Gir developed at MPKV Rahuri is named as _____.
 - 4) _____ is a power house of cell.

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
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B.Sc. (Agri.)

Semester : IV (New)	Term : II	Academic Year : 2016-17
Course No. : BOT 245	Title : Breeding of Field and Horticultural Crops	
Credits : 3 (2+1)		
Day & Date : Saturday, 06.05.2017	Time : 14.00 to 17.00	Total Marks : 80

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1 Define wide hybridization. Explain various techniques to make wide crosses successful.
- Q.2 Enlist the different types of recurrent selection and describe in detail the procedure of recurrent selection for GCA.
- Q.3 What is ideotype? Describe in detail various types of ideotype.
- Q.4 Write botanical name, chromosome number, mode of pollination and specific breeding objectives of following crops:
- a) Rice
 - b) Pigeon pea
 - c) Brinjal
 - d) Mango
- Q.5 Define biotic stress, enlist the various sources of insect resistance and explain different mechanisms of insect resistance.
- Q.6 What is backcross? Explain in detail the procedure of pedigree method
- Q.7 A) Explain in short different kinds of germplasm.
 B) Define stability and enlist different models of stability analysis.
- Q.8 Write short notes (Any Four).
- 1) Progeny selection
 - 2) Heritability
 - 3) Estimation of heterosis
 - 4) Gene-for gene hypothesis
 - 5) Genetic basis of adaptability to drought
- Q.9 Differentiate between (Any Four).
- 1) Heterosis and inbreeding depression
 - 2) Additive and dominance variance
 - 3) Polygenic and Oligogenic traits
 - 4) Monoploid and haploid
 - 5) General and Specific Combining Ability
- Q.10 Answer the following questions.
- 1) Explain factors affecting gene frequency in Mendelian population in short.
 - 2) Write botanical name and chromosome number of cultivated species of cotton.
 - 3) Give the full forms and headquarters of the UPOV and FAO.
 - 4) Elucidate in short about ideotype in rice.

(P.T.O.)

SECTION "B"

Q.11 A) Give the contribution of following scientists.

- | | |
|----------|----------------------|
| 1) Shull | 2) Donald |
| 3) Flor | 4) Sprague and Tatum |

B) Define the following terms.

- | | |
|--------------|----------------------|
| 1) Pureline | 2) Combining ability |
| 3) Stability | 4) Biometrics |

Q.12 Give full forms of the following.

- | | |
|----------|---------|
| 1) WTO | 2) BARC |
| 3) DUS | 4) SSD |
| 5) AICRP | 6) GCA |
| 7) GCV | 8) IRRI |

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B.Sc. (Agri.)

Semester : IV (New)	Term : II	Academic Year : 2016-17
Course No. : ECON 243	Title : Agricultural Finance and Cooperation	
Credits : 2 (1+1)	Time : 14.00 to 16.00	Total Marks : 40
Day & Date : Saturday, 29.04.2017		

- Note :**
1. Solve **ANY EIGHT** questions from **SECTION "A"**.
 2. All questions from **SECTION "B"** are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1 Define agricultural finance. Explain the scope and importance of agricultural finance.
- Q.2 What are the different sources of agricultural credit? Explain the professional money lender.
- Q.3 Explain the functions and management of Regional Rural Bank.
- Q.4 State the methods of project appraisal and explain the net present worth with suitable example.
- Q.5 Define loans. Classify the credit on the basis of time.
- Q.6 Explain in brief 7P's of credit.
- Q.7 State and explain the cooperative credit structure in India.
- Q.8 Define cooperation. Explain the principles of cooperation.
- Q.9 Explain the objective and functions of State Cooperative Bank Organization.
- Q.10 Write short notes (Any Two).

1) NABARD	2) Repayment plan
3) Function of MFAL	

SECTION "B"

- Q.11 Fill in the blanks.
 - 1) _____ implies availability of money with the farmers.
 - 2) _____ deals with the different sources of raising funds for agriculture as a whole in the economy.
 - 3) The responsibility of the _____ bank to allow the free flow of credit.
 - 4) In single window system _____ is one of the three tier credit structure.
- Q.12 Give full form of the following.

1) CLDB	2) SFDA
3) DISCOBARD	4) IMF

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B.Sc. (Agri.)

Semester : IV (New)	Term : II	Academic Year : 2016-17
Course No. : ENTO 242	Title : Insect Ecology, Integrated Pest Management and Beneficial Insects	
Credits : 3 (2+1)		
Day & Date : Tuesday, 02.05.2017	Time : 14.00 to 17.00	Total Marks : 80

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1 Define the term 'Insecticide'. Give the classification of insecticides on the basis of chemical composition with one example each.
- Q.2 Write the procedure for mass production of *Trichogramma* in the laboratory.
- Q.3 Enlist different methods of pest control. Explain the cultural method of pest control with suitable examples.
- Q.4 Define the term 'Biological control'. Explain the techniques of biological control.
- Q.5 Define 'IPM'. Write in brief about concepts of 'IPM'.
- Q.6 a) Explain the rearing of mulberry silkworm.
b) State the characteristics of ideal parasitoid.
- Q.7 Define 'Insect Ecology'. Explain the effect of temperature and humidity on insects with suitable examples.
- Q.8 a) Describe the types of pheromone.
b) Enlist the causes of pest outbreak.
- Q.9 What is insecticidal formulation? Why the formulations are necessary? Enlist different types of formulation with one example each.
- Q.10 Write short notes (Any Two).
1) Mechanism of Host Plant Resistance.
2) Management of rodents in field.
3) Role of IGRs in pest management.

SECTION "B"

- Q.11 Define the following terms.
- | | |
|---------------------|------------------------|
| 1) Biotic potential | 2) Legislative control |
| 3) Antifeedant | 4) LC ₅₀ |
| 5) ETL | 6) Regular pest |
| 7) Hyperparasite | 8) Insect Resurgence |

(P.T.O.)

Q.12 Match the following pairs.

"A"

- 1) Lac insect
- 2) BHC
- 3) Silent spring
- 4) Tasar silkworm
- 5) Genetic control
- 6) *Kopidosoma koehleri*
- 7) Synergist
- 8) Dust carriers

"B"

- a) Michael Faraday
- b) *Kerria lacca* (Kerr.)
- c) Potato tuber moth
- d) Rachel Carlson
- e) E.F.Knipling
- f) Attapulgate
- g) Piperonil butoxide
- h) *Antheraea mylitta*



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B.Sc. (Agri.)

Semester : IV (New)	Term : II	Academic Year : 2016-17
Course No. : HORT 243	Title : Production Technology of Spices, Aromatics, Medicinal and Plantation Crops	
Credits : 2 (1+1)		
Day & Date : Friday, 05.05.2017	Time : 14.00 to 16.00	Total Marks : 40

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1 Discuss the importance of plantation and medicinal crops in India.

Q.2 Describe the cultivation of black pepper on following points.

- | | |
|--------------------|---------------|
| a) Propagation | b) Varieties |
| c) Planting method | d) Harvesting |

Q.3 Describe the cultivation of ginger on following points.

- | | |
|----------------------------|-------------------------|
| a) Soil and climate | b) Propagation |
| c) Manures and fertilizers | d) Harvesting and yield |

Q.4 Complete the following table.

Sr.No.	Crop	Botanical name	Family	Propagation	Use
1)	Rauwolfia				
2)	Guggal				

Q.5 Describe the cultivation of cashew nut on following points.

- | | |
|---------------------|-------------------------|
| a) Soil and climate | b) Planting |
| c) Varieties | d) Harvesting and yield |

Q.6 Give the symptoms and control measures of two important diseases of coconut.

Q.7 Describe the cultivation of cardamom on following aspects.

- | | |
|----------------|--------------|
| a) Soil | b) Varieties |
| c) Propagation | d) Yield |

Q.8 Give the information on the following points pertaining to coriander.

- | | |
|---------------|-------------------------|
| a) Importance | b) Varieties |
| c) Fertilizer | d) Harvesting and yield |

Q.9 Explain in detail cultivation of nutmeg on following points.

- | | |
|---------------------|---------------------|
| a) Soil and climate | b) Propagation |
| c) Varieties | d) Plant parts used |

(P.T.O.)

Q.10 Write short note on (Any Two):

- 1) Gum tapping and collection in guggal.
- 2) Lowering of betel vine
- 3) Uses of Dawana

SECTION "B"

Q.11 Fill in the blanks.

- 1) Periwinkle belongs to family _____.
- 2) CPCRI is located at _____.
- 3) Citronella is vegetatively propagated by _____.
- 4) Cumin is classified as _____ spice.

Q.12 Match the following pairs.

"A"

- 1) Cocoa
- 2) Beetle vine
- 3) Tea
- 4) Areca nut

"B"

- a) Assam
- b) Mangala
- c) Chocolate
- d) Creeper

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : IV (New)	Term : II	Academic Year : 2016-17
Course No. : PATH 243	Title : Diseases of Field Crops and Their Management	
Credits : 3 (2+1)	Time : 14.00 to 17.00	Total Marks : 80
Day & Date : Thursday, 27.04.2017		

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1 a) Enlist the diseases of bajra along with name of causal organism.
b) Describe various symptoms, primary and secondary sources of infection of downy mildew of bajra.
- Q.2 Enlist the diseases of cotton and describe symptoms and control measures of wilt of cotton.
- Q.3 Quote any three diseases of rice and describe symptoms and management of blast disease.
- Q.4 Enlist three major diseases of sunflower and describe symptom and management of Alternaria leaf blight.
- Q.5 Describe in detail the causal organism, symptoms and management strategies for black stem rust of wheat.
- Q.6 Enlist different smut fungi of sorghum and enumerate the symptom and management of grain smut.
- Q.7 Enlist diseases of groundnut caused by fungi and write symptoms, sources of infection and management of tikka disease.
- Q.8 Describe the symptoms, etiology, primary and secondary sources of infection and management strategies for smut of sugarcane.
- Q.9 Write short notes in respect to symptoms and management (Any Two) :
- 1) Smut of maize
 - 2) Sesamum Phyllody
 - 3) Leaf blight of safflower
- Q.10 a) Describe symptoms and management of wilt of pigeon pea.
b) Describe symptoms and management of powdery mildew of green gram.

(P.T.O.)

SECTION "B"

Q.11 Match the following pairs.

"A"

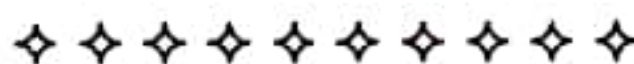
- 1) False smut of rice
- 2) Blast of ragi
- 3) Black rust of wheat
- 4) Yellow mosaic of green gram
- 5) Leaf blotch of turmeric
- 6) Rust of soybean
- 7) *Erysiphe polygoni*
- 8) Anthracnose of soybean

"B"

- a) *Colletotrichum truncatum*
- b) *Ustilagoidea virens*
- c) *Ectophytic mycelium*
- d) *Phakopsora pachyrhizi*
- e) White fly
- f) *Taphrina maculans*
- g) Barberry
- h) *Pyricularia grisea*

Q.12 Fill in the blanks.

- 1) 'Kresek' is the important symptom of _____ disease of rice.
- 2) Leaf curl of green gram is transmitted by _____.
- 3) Purple blotch of onion is caused by _____.
- 4) Stunt disease of chickpea is caused by _____.
- 5) Tobacco mosaic virus is transmitted through _____.
- 6) Nicotiana virus-10 causes _____ disease in tobacco.
- 7) The wilt pathogen of cotton produces _____ vegetative type spores.
- 8) Loose smut of wheat is caused by _____.



MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : IV (New)	Term : II	Academic Year : 2016-17
Course No. : SSAC 243	Title : Manures, Fertilizers and Agrochemicals	
Credits : 3 (2+1)	Time : 14.00 to 17.00	Total Marks : 80
Day & Date : Monday, 08.05.2017		

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1 a) Explain in detail chemistry of undecomposed organic materials.
b) Classify potassic fertilizers along with their properties.
- Q.2 a) Define Biofertilizer and give its importance in agriculture.
b) Define Insecticide. Give in detail regarding Nicotine insecticide.
- Q.3 a) Define Fungicide. Give the structure and properties of Phenyl Mercuric Acetate.
b) What is composting? Explain in brief the Indore method of composting.
- Q.4 a) Explain the properties, mode of action and structure of Glyphosate.
b) Define Chelates. Discuss the fate of micronutrients in soils.
- Q.5 a) Define Desiccants. Classsify the Phytoharmones with suitable examples.
b) Define Manures. Classify manures with suitable examples.
- Q.6 a) Enlist steps in the development of pesticides.
b) Write in detail about NADEP method of manuring.
- Q.7 a) Define Agrochemicals. Give classification of pesticide with examples.
b) Explain the reactions of Single Super Phosphate in soils.
- Q.8 a) Explain the mode of action of the organophosphates insecticides along with the properties of Malathion.
b) Give the significance of organic manures in soil properties.
- Q.9 a) Define Fertilizer. Give the manufacture process of Ammonium Sulphate.
b) Define Green Manuring Crops. Write the advantages and disadvantages of green manuring.
- Q.10 Write short notes (Any Four).
- | | |
|--------------------|--|
| 1) Enriched FYM | 2) Complex fertilizers |
| 3) Pyrethrum | 4) Insecticide Act |
| 5) Vermicomposting | 6) Handling and storage of fertilizers |

(P.T.O.)

SECTION "B"

Q.11. Match the following pairs.

"A"

- 1) Bangalore method
- 2) Rodenticide
- 3) Attractant
- 4) Green manuring
- 5) Vermicompost
- 6) Sesamax
- 7) Acaricide
- 8) Night soil

"B"

- a) *Eisenia foetida*
- b) Synergist
- c) Poudrette
- d) Lime sulphur
- e) Anaerobic decomposition
- f) Varfarin
- g) Methyl eugenol
- h) *Sesbania aculeate*

Q.12. State True or False.

- 1) In general C: N ratio of the saw dust is 72:1.
- 2) Oil cakes are partially decomposed inorganic materials used in agriculture.
- 3) Ammonium phosphate contains 52% P_2O_5 .
- 4) Biofertilizers are synthetic fertilizers prepared for the supply of nutrients.
- 5) $CaCN_2$ is the nitrate nitrogenous fertilizer.
- 6) Single super phosphate is highly hygroscopic in nature.
- 7) On an average it is assumed that FYM contains 0.5 per cent nitrogen.
- 8) Carnallite is copper bearing mineral.

