MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: **IV (New)**	**Term**	: **II**	**Academic Year**	: **2015-16**
Course No.	: AGRO 247	**Title**	: **Field Crops – II (Rabi Crops)**		
Credits	: 3 (2+1)				
Day & Date	: Friday, 29.04.2016	**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 Describe the cultivation of sugarbeet on following points.

1) Planting time and method
2) Varieties
3) Irrigation management
4) Harvesting and yield

Q.2 Explain in detail the cultivation of irrigated wheat on following points.

1) Seed bed preparation
2) Seed and sowing
3) Nutrient management
4) Harvesting and yield

Q.3 Discuss in detail about cultivation of sunflower on the following points.

1) Soil and climate
2) Critical growth stages
3) Recommended varieties
4) Harvesting and yield

Q.4 Explain in brief the cultivation of sugarcane on following aspects.

1) Selection of planting material
2) Preparation of sets
3) Planting time and planting methods.
4) Signs of maturity and yield

Q.5 Elaborate following points in respect of *rabi* sorghum cultivation.

1) Soil and climate
2) Seed and sowing
3) Manures and fertilizers
4) Harvesting and yield

Q.6 Prepare the leaflet of berseem considering following points.

1) Climate
2) Nutrient management
3) Water management
4) Harvesting and yield

Q.7 Discuss in detail about the cultivation of chickpea with reference to following

1) Seed and sowing
2) Recommended varieties
3) Irrigation management
4) Harvesting and yield

Q.8 Describe in detail the cultivation of potato in respect to following aspects.

1) Seed bed preparation
2) Nutrient management
3) Irrigation
4) Harvesting and yield

(P.T.O.)

Q.9 Discuss in detail about the cultivation of safflower on the following points.

1) Seed and sowing
2) Varieties
3) Irrigation management
4) Harvesting and yield

Q.10 Write short notes on (Any two).

1) Economic importance of citronella
2) Sun curing in tobacco
3) Economic importance of isabgol

SECTION "B"

Q.11 A) Fill in the blanks.

1) Sugar contain in sugarbeet is _____per cent.
2) Oil contain in mustard is _____ per cent.
3) Thiourea treatment given to potato for _____.
4) Wheat protein contains characteristic substance_____ which provides sponginess to the bread.

B) Correct the following statements if necessary.

1) Sunflower is a photo-sensitive crop.
2) Silking and tussling is the growth stage of *rabi* sorghum.
3) Palmarosa oil is popularly known as cochin oil.
4) The fodder of berseem is nutritious for milch animals.

Q.12 Match the following pairs.

"A"	"B"
1) Berseem	a) *Papaceae*
2) Isabgol	b) *Papaver somniferum*
3) Palmasora	c) *Leguminoceae*
4) Opium popy	d) *Plantago ovata*
5) French bean	e) King of fodder
6) Potato	f) *Cymbopogan martinii*
7) Oat	g) *Solanum tuberosum L.*
8) Citronella grass	h) *Avena sativa L.*
	i) *Cymbopogan flexuosus*

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

Semester	: **IV (New)**	**Term** : **II**	**Academic Year** : **2015-16**
Course No.	: ASDS 242	**Title**	: **Livestock Breeding and Nutrition**
Credits	: 2 (1+1)		
Day & Date	: Thursday, 28.04.2016	**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 State the systems of animal breeding and explain cross breeding.

Q.2 Draw a neat well labeled diagram of digestive system of cattle and write the functions of rumen and reticulum.

Q.3 Narrate in brief the history of animal breeding.

Q.4 Differentiate between the qualitative and quantitative traits in farm animals.

Q.5 What is mean by chromosomal abnormality? Give the summary of classification of chromosomal abnormality.

Q.6 Give brief classification of feeds and fodder.

Q.7 Differentiate between the composition of plant and animal body.

Q.8 Describe the functions of protein in animal body.

Q.9 Explain the methods of selection.

Q.10 Write short notes on (Any two).

1) Mutation
2) Gene expression
3) Complete feed block

SECTION "B"

Q.11 Define the following terms.

1) Gene frequency
2) Feed additives
3) Mitosis
4) Feeding standard

Q.12 Do as directed.

1) Which mineral deficiency causes pica?
2) Metabolic water contributes about _____ % of the total water requirement of the animal.
3) Mule is an example of _____.
4) What is the full form of DNFE?

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

Semester	: **IV (New)**	**Term**	: **II**	**Academic Year**	: **2015-16**
Course No.	: BOT 245	**Title**	: **Breeding of Field and Horticultural Crops**		
Credits	: 3 (2+1)				
Day & Date	: Monday, 02.05.2016	**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 germplasm. Enlist kinds of germplasm and describe various methods of germplasm conservation.

Q.2 Define recurrent selection. Give its types and explain reciprocal recurrent selection.

Q.3 Describe the characteristics of plant ideotype. Explain the important features of plant ideotype for cotton.

Q.4 Enlist breeding methods used in self and cross pollinated crops. Explain in detail pure line selection method.

Q.5 Define genetic resistance. Describe different sources used in developing disease resistance.

Q.6 What is combining ability? Describe the types of combining ability.

Q.7 Define heterosis. Enlist factors affecting the magnitude of heterosis. Describe in detail estimation of heterosis.

Q.8 What is mutation breeding? Explain in detail the procedure for mutation breeding.

Q.9 Complete the following table

Sr. No.	Crop	Botanical Name	Family	Origin	Chromosome No.
1)	Maize				
2)	Soybean				
3)	Desi Cotton				
4)	Brinjal				

Q.10 Write short notes on (Any two).
1) Multiple factor hypothesis
2) Heritability
3) Intellectual Property Rights (IPR)

SECTION "B"

Q.11 Define the following terms.
1) Distant hybridization
2) Inbred
3) Plant introduction
4) Horizontal resistance
5) Back cross
6) Stress
7) Stability
8) Polyploidy

Q.12 Give full form of the following.
1) CICR
2) IPGRI
3) IRRI
4) CAZRI
5) IARI
6) CRIDA
7) IIHR
8) NBPGR

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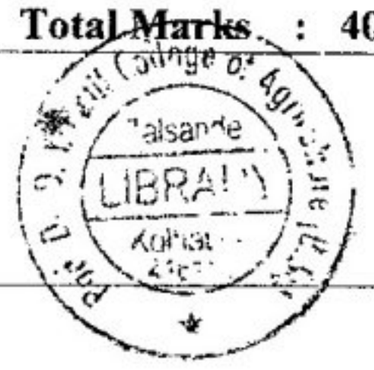
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	**: IV (New)**	**Term**	**: II**	**Academic Year**	**: 2015-16**
Course No.	: ECON 243	**Title**	**: Agricultural Finance and Cooperation**		
Credits	: 2 (1+1)				
Day & Date	: Tuesday, 26.04.2016	**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 Define agricultural finance. Explain in brief the importance and scope of agricultural finance in agricultural development.

Q.2 Give the classification of credit and explain in short any one of them.

Q.3 Enlist the different methods of project appraisal. Explain in brief the discounted measures of project appraisal.

Q.4 Enlist the feasibility tests of credit management and explain in short 3Rs of credit.

Q.5 Enlist the different principles of co-operation and explain in detail any one of them.

Q.6 What are the different sources of agricultural credit and state the role of Government in agricultural finance.

Q.7 Explain in brief the role of agricultural finance and co-operation in the rural credit.

Q.8 State the co-operative credit structure in India and explain in brief any one of them.

Q.9 Enlist the names of higher financing agencies and write in brief about IMF.

Q.10 Write short notes on (Any two).

1) NABARD
2) Repayment plans
3) Crop insurance

SECTION "B"

Q.11 Fill in the blanks.

1) Loans obtained from pawnbrokers by pledging movable properties like jewellery is called _____.
2) Anything which is generally accepted in exchange for other things and which can discharge all obligations past and present is called _____.
3) The committee of Taccavi loan was appointed under the chairmanship of_____.
4) The RBI established in the year_____.

Q.12 Give full form of the following.

1) DICGS
2) DCMS
3) LAMPS
4) PBP

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B.Sc. (Agri.)

Semester		IV (New)	**Term**	:	**II**	**Academic Year** :	**2015-16**
Course No.	:	ENTO 242	**Title**	:	**Insect Ecology, Integrated Pest Management and Beneficial Insects**		
Credits	:	3 (2+1)					
Day & Date	:	Wednesday, 27.04.2016	**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 What is pest and enlist their categories. Explain in brief the causes of pest outbreak in agro ecosystem.

Q.2 What is pest survey and surveillance in agricultural crops? Describe in brief sampling methods of insect.

Q.3 Enlist biotic and abiotic components of environment and explain in brief the influence of temperature on insects.

Q.4 Enlist the components of IPM and explain in brief mechanical methods of pest control

Q.5 What is pesticide? Give the classification of pesticides on the basis of organism and mode of entry with one example.

Q.6 Define pesticide formulation and describe in brief types of pesticide formulation.

Q.7 Describe mass production technique of *Trichogramma spp.* and *Ha*NPV.

Q.8 Enlist the recent methods of pest control and explain in brief antifeedant method of pest control.

Q.9 Write short notes on (Any two).

1) Advantages and disadvantages of HPR
2) Caste of honey bee
3) Insecticide act.
4) Microbial control

Q.10 a) What is biological control? Describe in brief techniques of biological control

b) Enlist the characters of effective natural enemy.

SECTION "B"

Q.11 Define the following terms.

1) Pest resurgence
2) Pheromones
3) Economic injury level
4) Parasitoid
5) LC_{50}
6) Insect ecology
7) Physical incompatibility
8) Sericulture

Q.12 Do as directed.

1) What is repellent?
2) Who discovered the insecticidal property of DDT?
3) What is transgenic plant?
4) Give scientific name of Indian bee and rock bee.
5) Give any two host plant of lac insects.
6) Write full form of CIB and NCIPM.
7) State any one example of sprayers and duster.
8) State any two antidotes used for poisoning due to stomach poison.

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B.Sc. (Agri.)

Semester	: **IV (New)**	**Term**	: **II**	**Academic Year**	: **2015-16**
Course No.	: HORT 243	**Title**	: **Production Technology of Spices, Aromatics, Medicinal and Plantation Crops**		
Credits	: 2 (1+1)				
Day & Date	: Saturday, 30.04.2016	**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 Describe in brief the cultivation of arecanut on following points.
1) Soil and climate
2) Varieties
3) Harvesting and yield
4) Processing and uses

Q.2 Discuss in brief importance and scope for commercial cultivation of spices, aromatic, medicinal and plantation crops in India.

Q.3 Write in detail cultivation of cashewnut on the following points.
1) Soil and climate
2) Propagation and planting
3) Varieties
4) Harvesting and yield

Q.4 Describe in short lemon grass cultivation on following points.
1) Family and botanical name
2) Uses
3) Important varieties
4) Harvesting and yield

Q.5 Comment on following (Any two).
1) Preparation of cherry coffee
2) Selection of coconut seedling for planting
3) Rejuvenation in cashew

Q.6 Write in short medicinal uses of following crops.
1) Geranium
2) Aloe vera
3) Periwinkle
4) Senna

Q.7 Write in detail cultivation of ginger on the following points.
1) Propagation and planting
2) Varieties
3) Harvesting and yield
4) Curing

Q.8 Write short notes on (Any two).
1) Selection of mother palm in coconut
2) Harvesting and processing of cinnamon
3) Processing of white pepper

(P.T.O.)

Q.9 Write in detail cultivation of nutmeg on the following points.

1) Soil and climate
2) Propagation and planting method
3) Varieties
4) Plant part used

Q.10 Complete the following table with correct information

Sr. No.	Crop	Botanical name	Common method of propagation	Planting distance	Yield/ha
1	Rauwolfia				
2	Turmeric				

SECTION "B"

Q.11 Match the following pairs.

"A"	"B"
1) Cumin	a) Coconut
2) Betel vine	b) *Camellia sinensis*
3) Tea	c) Seed spices
4) Toddy	d) Creeper

Q.12 Fill in the blanks.

1) The steroid diosgenin is extracted from_____.
2) On the basis of sex form, nutmeg is _____ crop.
3) Cardamom is known as _____ of spices.
4) Periwinkle belongs to the family _____.

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B.Sc. (Agri.)

Semester	**: IV (New)**		**Term**	**: II**	**Academic Year : 2015-16**
Course No.	**:** PATH 243		**Title**	**: Diseases of Field Crops and Their Management**	
Credits	**:** 3 (2+1)				
Day & Date	**:** Monday, 25.04.2016	**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 a) Enlist the important diseases of rice and describe the symptoms and management strategies for bacterial blight of rice.

b) Write the management practices of following diseases.

1) Powdery mildew of green gram

2) Red rot of sugarcane.

Q.2 Write the symptoms for following diseases (Any four).

1) Downey mildew of sunflower
2) Ergot of bajara
3) Tikka of groundnut
4) Rust of linseed
5) Wilt of chick pea

Q.3 Enlist different diseases of sorghum and write in brief about the symptoms and management of loose smut.

Q.4 a) Enlist major diseases of soybean along with causal organism. Enumerate the symptoms and management strategies for rust of soybean.

b) Write in detail about leaf spot of turmeric restricted to following point (Any four).

1) Causal organism
2) Symptoms
3) Etiology
4) Perpetuation
5) Control

Q.5 a) Write symptoms, causal organism, host and transmission of tobacco mosaic and leaf curl of tobacco.

b) Enlist diseases of safflower and describe in short about wilt of safflower restricted to following points (Any four)

1) Causal organism
2) Symptoms
3) Etiology
4) Perpetuation
5) Control measures

(P. T. O.)

Q.6 Write symptoms, transmission, causal organism and management of following diseases (Any two).

1) Bud necrosis of groundnut
2) Grassy shoot of sugarcane
3) Sterility mosaic of red gram

Q.7 a) Write down the diseases of caster and write in brief about symptoms and control measures of leaf blight.

b) Describe symptoms and etiology of red rot of sugarcane.

Q.8 Write in brief about following with examples

1) Hot water treatment
2) Solar heat treatment
3) Brine treatment
4) Fungicidal seed treatment

Q.9 Write down the diseases of cotton and enumerate the symptoms and control measures for angular leaf spot of cotton.

Q.10 Enlist different diseases of wheat and describe disease cycle of stem rust of wheat in India.

SECTION "B"

Q.11 Match the following pairs.

"A"		"B"	
1)	Alternate host of bajra rust	a)	Sulphur dusting
2)	Sterility mosaic	b)	Brinjal
3)	Phyllody	c)	Tobacco
4)	TMV	d)	Red gram
5)	Whip smut of sugarcane	e)	Sesamum
6)	Kresek stage	f)	Tobacco
7)	Powdery mildew of sesamum	g)	Rice
8)	Broom rape (root parasite)	h)	*Ustilago scitamini*

Q.12 State True or False.

1) Blast of ragi is caused by *Puricularia grisea.*
2) *Colletotrichum species* infecting ginger produces acervulus with setae.
3) Grassy shoot of sugarcane is caused by fungi
4) Autoecious rust required only one host to complete their life cycle.
5) Reddening in cotton can be managed by $MgSO_4$ spray and proper drainage.
6) 'Kresek' phase of bacterial blight occurs in cotton.
7) Alternate host for black stem rust of wheat is barbery.
8) Anthracnose of black gram is caused by *Colletotrichum lindemuthianum.*

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

Semester	**: IV (New)**	**Term**	**: II**	**Academic Year**	**: 2015-16**
Course No.	**: SSAC 243**	**Title**	**: Manures, Fertilizers and Agrochemicals**		
Credits	**: 3 (2+1)**				
Day & Date	**: Tuesday, 03.05.2016**	**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 a) What is organic recycling? Enlist the sources of organic matter. Give the general composition of organic matter.
b) Define manures. Classify the manures with suitable examples.

Q.2 a) What is vermicompost? Explain the pit method of preparation of vermicompost.
b) What is green manuring? State its advantages and disadvantages.

Q.3 a) Define fertilizers. Classify the nitrogenous fertilizers with suitable examples.
b) Define sewage and sludge. Write its effect on soil and crop.

Q.4 a) Give the general characteristics and advantages of complex fertilizers.
b) How will you improve the efficiency of phosphatic fertilizers for higher crop production.

Q.5 a) Define biofertilizers. Classify the biofertilizers with suitable example.
b) Define herbicide. Write in brief the general mode of action of herbicides.

Q.6 a) What are phytoharmones? Give its classification with suitable example.
b) Give occurrence and mode of action of plant origin insecticides.

Q.7 a) Define micronutrients. Write in brief the important role of micronutrients in crop growth.
b) Give the classification and mode of action of organochloride insecticides.

Q.8 a) Define pesticides and give its classification with suitable example.
b) Define FYM. Enlist the methods of its preparation and explain any one.

Q.9 a) Define composting. Explain Indore method of composting.
b) Define fungicides. Give the structure and properties of organo-sulphur fungicides.

Q.10 a) Enlist the steps in development of pesticides.
b) Write in brief on storage and handling of NPK fertilizers.

(P. T. O.)

SECTION "B"

Q.11 Match the following pairs.

"A"	"B"
1) Blood meal	a) Sulphur oxidizing microorganism.
2) Green leaf manuring	b) Methyl bromide
3) Defoliants	c) Glyricidia
4) Schoenite	d) Muscalure
5) Chlorinated hydrocarbon	e) Marine salt
6) *Thiobacillus*	f) Aldrin
7) Nematicide	g) Sodium chlorate
8) Attractant	h) Concentrated organic manure

Q.12 Fill in the blanks.

1) The C:N ration of saw dust is_____.
2) During anaerobic decomposition of cowdung slurry _____gas is evolved.
3) The clear liquid that escapes from settling of sludge is known as_____.
4) Lime induced chlorosis in field crop is due to deficiency of _____micronutrient.
5) Ammonium molybdate contains_____ per cent Mo.
6) _____is a living floating association of aquatic fern and algae which fixes atmospheric nitrogen in submerged soil.
7) Carbaryl is classified as a_____ insecticide.
8) Organophosphate insecticides affect the_____ enzyme present in synapse.

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