

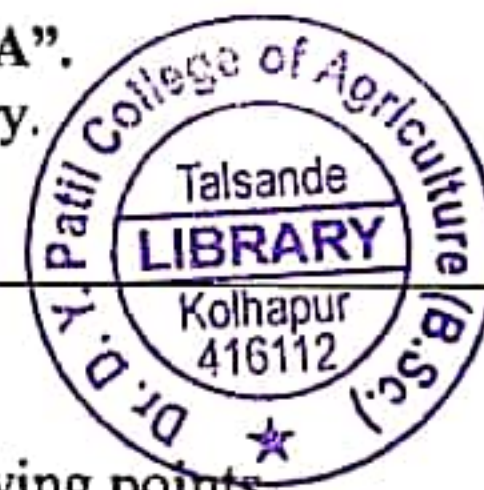
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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : IV (Old)	Term : II	Academic Year : 2018-19
Course No. : AGRO 247	Title : Field Crops – II (Rabi Crops)	
Credits : 3 (2+1)		
Day & Date : Monday, 06.05.2019	Time : 09.00 to 12.00	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 in short cultivation of Suru Sugarcane on following points.
- a) Fertilizer management
 - b) Water management
 - c) Planting time and methods
 - d) Varieties
- Q.2 Describe the cultivation of Tobacco on following key points.
- a) Soil and climate
 - b) Manures and fertilizers
 - c) Land preparation
 - d) Topping
- Q.3 Elaborate the following points of Wheat cultivation.
- a) Seed and sowing
 - b) Manures and fertilizers
 - c) Irrigation
 - d) Harvesting and yield
- Q.4 Elaborate the cultivation practices of Safflower crop on following points.
- a) Soil and climate
 - b) Seed and sowing
 - c) Manures and fertilizers
 - d) Harvesting and yield
- Q.5 Describe in brief cultivation of Chickpea on following points.
- a) Seed and sowing
 - b) Soil and climate
 - c) Manures and fertilizers
 - d) Irrigation
- Q.6 Elaborate the following points on Fodder maize cultivation.
- a) Manures and fertilizers
 - b) Varieties
 - c) Soil and climate
 - d) Sign of maturity and fodder yield
- Q.7 Give the information on following points about the cultivation of Mustard.
- a) Varieties
 - b) Seed and sowing
 - c) Fertilizer management
 - d) Crop rotation

(P.T.O.)

Q.8 Describe in brief cultivation of Barley on following points.

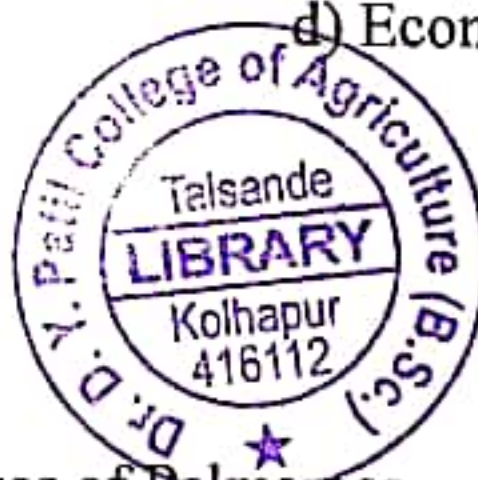
- | | |
|----------------------------|-------------------------|
| a) Recommended varieties | b) Seed and sowing |
| c) Manures and fertilizers | d) Harvesting and yield |

Q.9 Elaborate the following points of Berseem cultivation.

- | | |
|--------------------------|----------------------------|
| a) Soil and climate | b) Manures and fertilizers |
| c) Seed rate and spacing | d) Economic importance |

Q.10 Write short notes (Any two).

- Medical uses of Isabgol
- Seeds and sowing of potato
- Economic importance and uses of Palmarosa



SECTION "B"

Q.11 Fill in the blanks.

- Potato belongs to the family _____.
- Botanical name of pea is _____.
- Lemon grass belongs to _____ family.
- Seed rate of oat is _____ kg/ha.
- Sugar beet content _____ percentage of sugar.
- Linseed contains _____ per cent oil.
- Botanical name of opium poppy is _____.
- Lentil is originated from _____.

Q.12 Match the following pairs.

'A'

- Lucerne
- Lentil
- Sugar beet
- Citronella
- Sorghum
- Rape seed
- Barley
- French bean

'B'

- Phaseolus vulgaris*
- Hordeum vulgare*
- Cruciferae*
- Sorghum biocolour*
- Cymbopogon winterianus*
- Lens esculenta*
- Medicago sativa*
- Beta vulgaris*

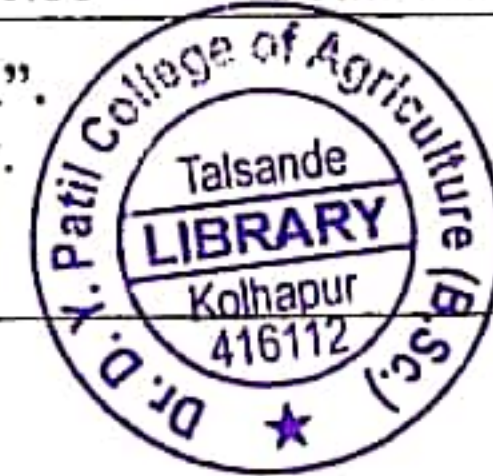


**MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION**

B.Sc. (Agri.)

Semester : IV (Old)	Term : II	Academic Year : 2018-19
Course No. : ASDS 242	Title : Livestock Breeding and Nutrition	
Credits : 2(1+1)	Time : 09.00 to 11.00	Total Marks : 40
Day & Date : Tuesday, 07.05.2019		

- 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 Enlist various phases followed during cell division under Mitosis and Meiosis. Describe in short various events followed at Mitosis?
- Q.2 What is mean by chromosomal aberration? Explain in short and give the classification of chromosomal aberrations?
- Q.3 What is Hardy-Weinberg law? Enlist four steps of proof of Hardy-Weinberg law with constancy of gene frequency and give the properties of Hardy-Weinberg law.
- Q.4 Enlist the basis and methods of selection and write down advantages and limitations of Pedigree selection?
- Q.5 Define feed stuff. Give the classification of feed-stuffs with suitable examples and write down short note on unconventional feed stuffs?
- Q.6 Enlist various six major feed nutrients and write down functions of carbohydrates in animal body.
- Q.7 What is mean by feeding standards? Enlist advantages of feeding standards.
- Q.8 Describe in short functions of various organs of cattle digestive system.
- Q.9 Write short notes (Any two).
 - a) Spermatogenesis
 - b) Urea Molasses Mineral Blocks (UMMB) Licks
 - c) Advantages of Silage making
- Q.10 Differentiate between (Any two).
 - a) Qualitative and Quantitative trait
 - b) Roughages and Concentrates
 - c) Plant cell and Animal cell

(P.T.O.)

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SECTION "B"

Q.11 Define the following term.

- | | |
|------------------|-------------------|
| 1) Half sib | 2) Balance ration |
| 3) Repeatability | 4) Selection |

Q.12 Select proper answer.

- 1) Sudden change in the structure of gene is known as _____.
a) Migration b) Mutation c) Selection
- 2) _____ is the byproduct obtained from sugar industry.
a) Silage b) Molasses c) Brains
- 3) _____ is known as Father of genetics.
a) Mendel b) Muller c) Khurana
- 4) Milk fever is cause due to deficiency of _____.
a) Calcium b) Copper c) Cobalt

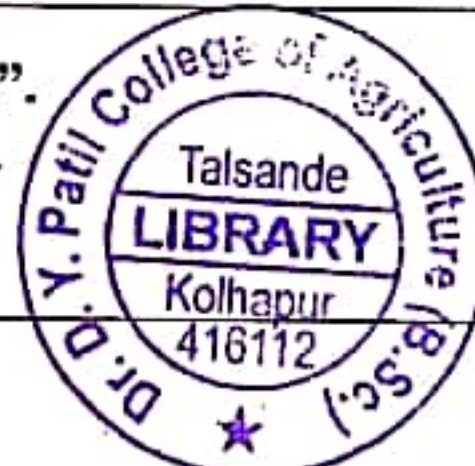
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**MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION**

B.Sc. (Agri.)

Semester : IV (Old)	Term : II	Academic Year : 2018-19
Course No. : BOT 245	Title : Breeding of Field and Horticultural Crops	
Credits : 3 (2+1)		
Day & Date : Wednesday, 08.05.2019	Time : 09.00 to 12.00	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 Write botanical name, chromosome number, family and breeding objectives of following crops (Any two).
- a) Finger millet b) Guava c) Chilli
- Q.2. Enlist breeding methods in autogamous crops. Explain pedigree method of breeding.
- Q.3 Define ideotype. Give different types of ideotype. Describe main features of ideotype breeding.
- Q.4 Explain in brief.
- a) IPR b) Germplasm
- Q.5 a) Explain mechanism for insect resistance.
- b) Describe sources of disease resistance in crop plants.
- Q.6 a) Describe simple measures of variability used for assessing the variability of germplasm.
- b) Define combining ability and give its types.
- Q.7 Define Drought resistance. Explain morphological characters associated with Drought resistance.
- Q.8 What is clonal selection? Describe the method for clonal selection along with it's merits and demerits.
- Q.9 a) Define stability. Enlist different models of stability analysis and give its significance in plant breeding.
- b) Enlist breeding objectives of Rose
- Q.10 a) Explain gene for gene hypothesis.
- b) Enlist hurdles in breeding for salinity resistance.

(P.T.O.)

SECTION "B"

Q.11 Define the following terms.

- | | |
|--------------------------|-----------------------|
| 1) Recurrent parent | 2) Pathotype |
| 3) Biometrics | 4) Mutation |
| 5) Inbreeding depression | 6) Hardy-weinberg law |
| 7) Gene bank | 8) Stress |

Q.12 Give full form of the following.

- | | |
|---------|-----------|
| 1) UPOV | 2) IPGRI |
| 3) CRRI | 4) ICARDA |

b) Fill in the blanks.

- 1) Jute belongs to family _____.
- 2) Individuals with unlike alleles at the corresponding loci are known as _____.
- 3) Headquarter of UPOV is at _____.
- 4) The term ideotype was first proposed by _____.

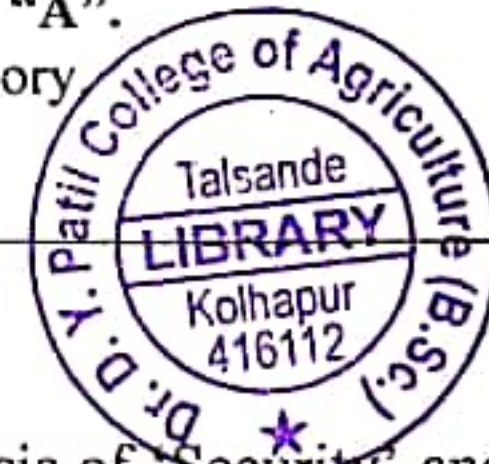
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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : IV (Old)	Term : II	Academic Year : 2018-19
Course No. : ECON 243	Title : Agricultural Finance and Cooperation	
Credits : 2 (1+1)	Time : 09.00 to 11.00	Total Marks : 40
Day & Date : Friday, 03.05.2019		

- 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 credit? State classification of credit on the basis of 'Security' and explain in detail hypothecated type of loan.
- Q.2 What do you mean by Agricultural finance? Explain in short principles of farm finance.
- Q.3 State types of repayment plans and explain 'Amortized repayment plan' with example.
- Q.4 Explain in detail objectives and functions of NABARD.
- Q.5 What is Co-operation? State and explain principles of co-operation.
- Q.6 Explain in detail three tier co-operative credit structures in Maharashtra.
- Q.7 What do you understand by 3 R's of credit? Explain risk bearing ability with example.
- Q.8 What is time value of money? Explain the discounted measures of project appraisal.
- Q.9 State different institutional and non-institutional sources of credit in India and elaborate non-institutional sources in detail.
- Q.10 Write short note (Any two).
 - a) Importance of Crop Insurance
 - b) Functions of RBI
 - c) Need of Agricultural Credit

SECTION "B"

- Q.11 Define the following terms.
 - 1) Self liquidating loan
 - 2) Scale of finance
 - 3) Junk value
 - 4) Long term loan
- Q.12 Give full form of following.
 - 1) IMF
 - 2) IBRD
 - 3) DICGC
 - 4) CRAFTICARD

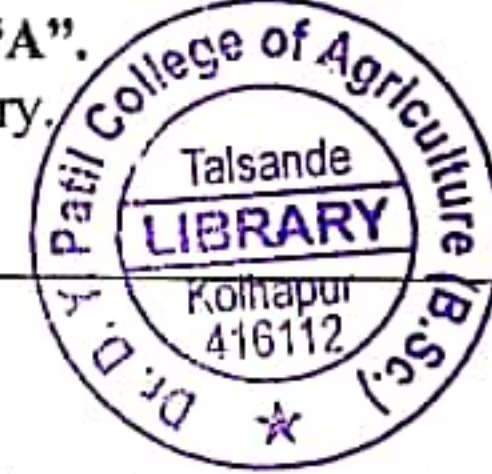


**MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION**

B.Sc. (Agri.)

Semester : IV (Old)	Term : II	Academic Year : 2018-19
Course No. : ENTO 242	Title : Insect Ecology, Integrated Pest	
Credits : 3 (2+1)	Management and Beneficial Insects	
Day & Date : Saturday, 04.05.2019	Time : 09.00 to 12.00	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 Enlist biotic and abiotic components of environment and explain the influence of temperature on insects.
- Q.2 Define pest and enlist their categories? Describe the factors responsible for pest outbreak in agro ecosystem.
- Q.3 Define IPM. Enlist the different methods of pest control and explain in detail the mechanical control.
- Q.4 Define pesticide formulation, Why need to formulate pesticides? Describe types of pesticide formulations.
- Q.5 a) Define insecticide. Write down the properties of ideal insecticides or pesticides.
b) Distinguish between predator and parasite.
- Q.6 a) What is biological control? Describe the Techniques of Biological Control.
b) Classify the insecticides on the basis of mode of entry.
- Q.7 a) Define apiculture. Explain the duties performed by worker bee.
b) Define sericulture. Write down the procedure of rearing mulberry silkworm.
- Q.8 Describe in detail mass production technique of *Trichogramma spp.* and *Helicoverpa armigera* NPV.
- Q.9 State the four important species of rat with their scientific names. Describe cultural and chemical methods adopted for rodent control in field.
- Q.10 Write short notes (Any two).
 - a) Microbial control
 - b) Insecticide Act, 1968
 - c) Mechanism of HPR

(P.T.O.)

SECTION "B"

Q.11 Define the following terms

- | | |
|-------------------|--------------------|
| 1) Insect ecology | 2) Lac culture |
| 3) Pheromones | 4) LC_{50} |
| 5) ETL | 6) Pest resurgence |
| 7) Pest survey | 8) Agro ecosystem |

Q.12 Do as directed.

- 1) The active ingredient of Neem is _____.
- 2) Insects which are active at dusk are called _____.
- 3) Who is the founder of male sterile techniques?
- 4) Chemicals that induce avoiding (oriented) movements in insect away from their source are called _____.
- 5) State any two antidotes used for poisoning due to stomach poison.
- 6) State any one example of sprayers and duster.
- 7) The lure used to attract *Helicoverpa armigera* is _____.
- 8) Give any two host plants of Lac insects.

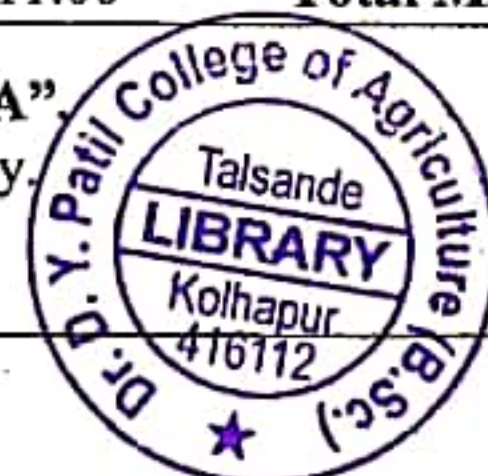
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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : IV (Old)	Term : II	Academic Year : 2018-19
Course No. : HORT 243	Title : Production Technology of spices, Aromatic, Medicinal and Plantation Crops	
Credits : 2 (1+1)	Time : 09.00 to 11.00	Total Marks : 40
Day & Date : Thursday, 09.05.2019		

- 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 Explain importance of medicinal and plantation crops.
- Q.2 Classify medicinal plants on the basis of plant part used for commercial formulation.
- Q.3 Discuss in detail cultivation of Ginger on the following points.
- a) Soil and climate
 - b) Propagation and planting
 - c) Manures and fertilizers
 - d) Harvesting and yield
- Q.4 Write cultivation of Coconut on following aspects.
- a) Soil and climate
 - b) Raising of seedlings and varieties
 - c) Manures and fertilizers
 - d) Harvesting and yield
- Q.5 Describe cultivation of Lemon grass on following points.
- a) Soil and climate
 - b) Propagation and planting
 - c) Varieties
 - d) Harvesting and yield
- Q.6 Write short notes (Any Two).
- a) Protection, training and pruning in black pepper
 - b) Latex collection of opium poppy
 - c) Processing of coffee
- Q.7 Discuss cultivation of Isabgol in respect of soil, climate, manuring, irrigation, harvesting, yield and one pest with control measure.
- Q.8 Furnish information on cultivation of Cinnamon on the following aspects.
- a) Uses
 - b) Soil and climate
 - c) Varieties
 - d) Harvesting and processing
- Q.9 Give information on.
- a) Lowering down in betel vine
 - b) Gum tapping in guggul

(P.T.O.)

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Q.10 Describe the cultivation of Korphad (Aloe) on following points.

- | | |
|---------------------|-----------------------------|
| a) Soil and climate | b) Propagation and planting |
| c) Manuring | d) Harvesting and yield |

SECTION "B"

Q.11 Match the following pairs.

'A'

- 1) Hemanti
- 2) Vincristine
- 3) VTLAH
- 4) Triphala

'B'

- a) *Areca catechu* L.
- b) *Terminalia chebulla*
- c) *Pelargonium graveolens*
- d) *Catharanthus roseus*

Q.12 Do as directed.

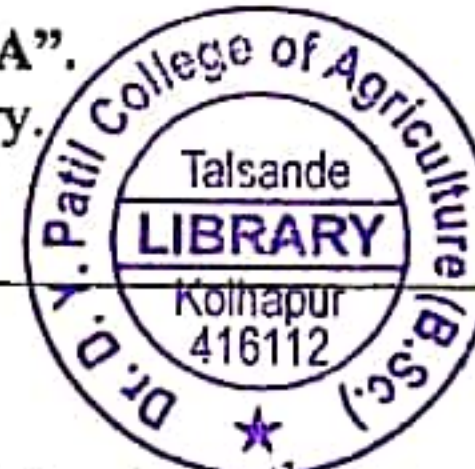
- 1) Where Directorate of Medicinal and Aromatic Plants Research is located?
- 2) State names of different parts of cashew nut fruit.
- 3) Which parts of nutmeg fruits are commercially used?
- 4) State the name of sweetener extracted from the plant of *Stevia rebaudiana*.



B.Sc. (Agri.)

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.



Q.1 a) Enlist the major diseases of soybean caused by fungi, enumerate the symptoms and management strategies for rust of soybean.
b) Describe in detail whip smut of sugarcane in respect of symptoms, etiology and management.

Q.2 a) Enlist any three important diseases of rice. Describe symptoms and management strategies for bacterial leaf blight of rice.
b) Write in detail favorable conditions, spread survival and management of yellow mosaic disease of green gram.

Q.3 a) Write in brief differential characteristics of *Cercospora arachidicola* and *Cercospora personatum*.
b) Describe in short symptoms and perpetuation of *Puccinia helianthi* and *Alternaria helianthi*.

Q.4 Write short notes (Any two).
a) Blast of ragi
b) Striga
c) Broomrape
d) Anthracnose of cotton

Q.5 a) Describe in brief differential characters of all smut causing fungi in sorghum.
b) Describe in brief sterility mosaic disease of pigeon pea in relation with cause, symptoms and management practices.

Q.6 a) Describe in brief cause and symptoms of downy mildew causing fungi in bajra.
b) Write in brief causal organism, symptoms, transmission and management of necrosis of sunflower.

Q.7 Write cause, symptoms and management for following diseases.
a) Root rot of bengal gram
b) Leaf blotch of turmeric

Q.8 Describe in detail life cycle of *Puccinia graminis tritici*

(P.T.O.)

Q.9 Give in short, the cause symptoms and management for following diseases.

- a) Angular leaf spot of cotton. b) Wilt of safflower.

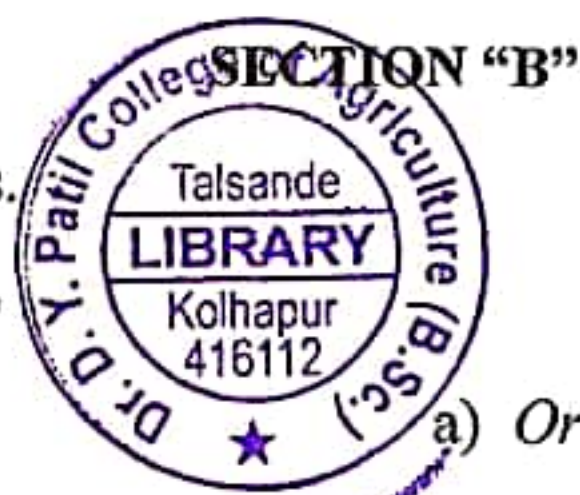
Q.10 Write primary and secondary source of infection of following diseases.

- a) Downy mildew of maize b) Ergot of bajra
c) Tikka of groundnut d) Rust of sunflower

Q.11 Match the following pairs.

‘A’

- 1) Cleistothecium
- 2) Phyllody of sesamum
- 3) Red gram wilt
- 4) Linseed rust
- 5) Wheat rust
- 6) Rust of bajra
- 7) Ascospores in stroma
- 8) Leaf blight of castor



‘B’

- a) *Orostius albicinctus*
- b) *Erysiphe polygoni*
- c) Autoecious
- d) Hetroecious
- e) BSMR-736
- f) Ergot fungi
- g) *Alternaria ricini*
- h) Brinjal

Q.12 Fill in the blanks.

- 1) Sterility mosaic disease in pigeon pea is transmitted by_____.
- 2) Leaf curl of tobacco is caused by _____.
- 3) Alternate host of black stem rust of wheat is _____.
- 4) Downy mildew effectively controls by_____.
- 5) Leaf blotch of garlic caused by_____.
- 6) Extreme sensitivity to 2-4-D occurs in _____ crop.
- 7) *Fusarium oxysporum* perpetuate in soil in the form of _____.
- 8) Wheat bunt is caused by _____.

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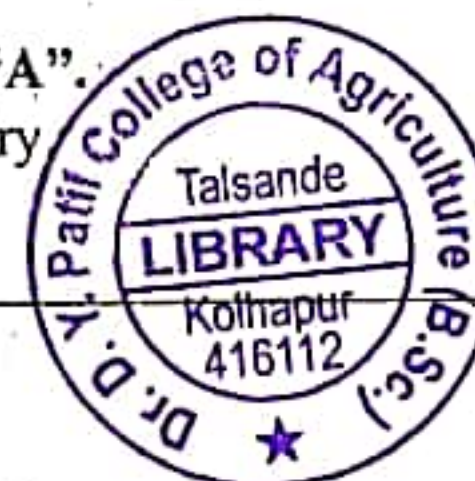
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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : IV (Old)	Term : II	Academic Year : 2018-19
Course No. : SSAC 243	Title : Manures, Fertilizers and Agrochemicals	
Credits : 3 (2+1)	Time : 09.00 to 12.00	Total Marks : 80
Day & Date : Friday, 10.05.2019		

- 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? Explain in brief the C: N ratios.
b) Define concentrated organic manures. Give its classification with suitable examples.
- Q.2 a) Enlist different types of compost and explain vermicomposting in brief.
b) State types of green manuring. Give advantages and disadvantages of green manuring.
- Q.3 a) Explain in brief the decomposition of organic compounds.
b) Differentiate between sewage and sludge.
- Q.4 a) Classify the nitrogenous fertilizers with suitable examples.
b) Give the general reactions of SSP and Rock phosphate in soil.
- Q.5 a) Explain in brief the management of nitrogenous fertilizers in soil.
b) Classify the potassic fertilizers and give the sources of potassic fertilizers.
- Q.6 a) Define complex fertilizers and explain in brief the advantages of complex fertilizers.
b) Define micronutrients and give the sources of micronutrient fertilizers.
- Q.7 a) Explain in brief the handling and storage of phosphatic and potassic fertilizers.
b) Define Biofertilizer and explain in brief the symbiotic nitrogen fixation.
- Q.8 a) Give the classification of pesticide with suitable examples.
b) Give the mode of action of organophosphate insecticides.
- Q.9 a) Write in brief the general mode of action of herbicides.
b) What are phytohormones? Give its classification with suitable examples.

(P.T.O.)

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Q.10 Write short notes (Any two)

a) Fertilizer control order

LIBRARY

b) Mode of action of lime sulphur

c) Bulky organic manures

d) Natural chelates

SECTION "B"

Q.11 Define the following terms.

1) Compost

2) Fertilizers

3) Manures

4) Nitrification

5) Anaerobic

6) Fungicide

7) Insecticide

8) Synthetic pyrethroids

Q.12 Answer in one sentence.

1) Give average chemical composition of FYM.

2) What are mycorrhizae?

3) Give one example of carbamate insecticide.

4) Give one example of water soluble phosphatic fertilizer.

5) Give the name of secondary nutrients.

6) Name the plant originated insecticide.

7) Name one defoliant.

8) Give one example of copper fungicide.

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