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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	: VI (New)	Term	: Second	Academic Year	: 2022-23
Course No.	: AGRO 3612	Title	: Geo-informatics and Nano-technology and Precision Farming		
Credits	: 2 (1+1)				
Day & Date	: Tuesday, 04.07.2023	Time	: 14:00 to 16:00 hrs.	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 diagram wherever necessary.

SECTION 'A'

- Q.1 Define Geo-informatics and explain in short principles of Geo-informatics.
- Q.2 What is Remote sensing? Give its application in agriculture.
- Q.3 Define Nano-fertilizers and explain how nano-fertilizers are more beneficial as compared to chemical fertilizers.
- Q.4 Define Precision farming. Enlist the components of precision farming and explain any one in detail.
- Q.5 What is Global Positioning System (GPS)? Explain in short its components and functions.
- Q.6 Define Nano-technology. Give its application in agriculture.
- Q.7 What is STRC approach? Give its importance in precision farming.
- Q.8 Define Crop model. Enlist the various types of model and explain simulation model.
- Q.9 What are Nano-pesticides? State the formulations of nano-pesticides and its advantages.
- Q.10 Write short notes on (Any Two):
- a) Soil mapping
  - b) Constraints of precision farming in India
  - c) Soil-cum-plant analysis based SSNM approach

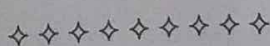
SECTION 'B'

- Q.11 Expand the following abbreviations:

- 1) GIS                      2) VRT                      3) HVI                      4) IRS

- Q.12 Fill in the blanks:

- 1) \_\_\_\_\_ is an act of examining image for the purpose of identifying objects and judging their significance.
- 2) \_\_\_\_\_ is a powerful set of tools for collecting, storing and retrieving the data.
- 3) Size of nanoparticle is \_\_\_\_\_.
- 4) \_\_\_\_\_ are crop yield measuring devices installed in harvesting equipment.



MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	: VI (New)	Term	: Second	Academic Year	: 2022-23
Course No.	: AHDS 364	Title	: Sheep, Goat and Poultry Production		
Credits	: 2 (1+1)	Time	: 14:00 to 16:00 hrs.	Total Marks	: 40
Day & Date	: Wednesday, 05.07.2023				

- 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 diagram wherever necessary.

SECTION 'A'

- Q.1 Describe in short importance of sheep and goat in national economy.
- Q.2 Write down in detail about care and management of lamb and kids.
- Q.3 Explain in brief about mating systems used in improvement of sheep and goat.
- Q.4 Define culling. Enlist important points to be considered for culling.
- Q.5 Discuss about preventive measures of diseases generally followed in sheep and goat.
- Q.6 Write short notes on (Any Two):
- a) Saanen
  - b) Kadaknath
  - c) Deccani sheep
- Q.7 Define brooding. Enlist brooding methods and explain about artificial brooding.
- Q.8 Write down in short about housing of sheep and goat.
- Q.9 Classify the poultry breeds according to their utility with suitable examples.
- Q.10 Enlist the slaughtering methods and explain about halal method of slaughtering.

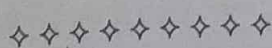
SECTION 'B'

- Q.11 Define the following terms:

- 1) Topping      2) Gestation      3) Docking      4) Layer

- Q.12 Fill in the blanks:

- 1) Sheep is also called as \_\_\_\_\_ animal.
- 2) Act of mating in goat, is called as \_\_\_\_\_.
- 3) According to NBAGR, \_\_\_\_\_ number of poultry breeds are found in India.
- 4) \_\_\_\_\_ m length of rope is required in tethering method.





MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	: VI (New)	Term	: Second	Academic Year	: 2022-23
Course No.	: ECON 365	Title	: Farm Management, Production and Resource Economics		
Credits	: 2 (1+1)	Time	: 14:00 to 16:00 hrs.	Total Marks	: 40
Day & Date	: Thursday, 06.07.2023				

- 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 diagram wherever necessary.

SECTION 'A'

- Q.1 What is Farm Management? State objectives of farm management and explain its nature.
- Q.2 Enlist different economic principles applied to farm management. Explain any one principle with example.
- Q.3 State the different types of farming and explain specialized farming with its advantages and disadvantages.
- Q.4 State and explain law of decreasing returns with example. State the reasons for the operation of the law in agriculture.
- Q.5 What are the seven types of costs? Explain the relationship between average and marginal cost curves.
- Q.6 What is Farms Budgeting? Differentiate between complete and partial budgeting.
- Q.7 Explain the importance of farm records and accounts in managing a farm. State advantages and difficulties in farm records and accounts keeping.
- Q.8 What is Natural Resource Economics? Explain the difference between Agricultural Economics and Natural Resource Economics.
- Q.9 What is Farm Plan? State its importance and characteristics of a good farm plan.
- Q.10 Write short notes on:
- a) Properties of iso-quant (Any Four)      b) Farm inventory

SECTION 'B'

- Q.11 Define the following terms:

- |                         |                        |
|-------------------------|------------------------|
| 1) Returns to scale     | 2) Linear programming  |
| 3) Negative externality | 4) Production function |

- Q.12 State True or False:

- 1) Uncertainty is insurable.
- 2) Farm Management is generally considered to be macroeconomic in its scope.
- 3) The relationship between cost function and production function is inverse.
- 4) Cost of next best alternative foregone is called real cost.



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SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	VI (New)	Term	Second	Academic Year	2022-23
Course No.	ENGG 364	Title	Protected Cultivation and Secondary Agriculture		
Credits	2 (1+1)	Time	14:00 to 16:00 hrs.	Total Marks	40
Do & Date	Friday, 07.07.2023				

- 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 diagram wherever necessary.

SECTION 'A'

- Q.1 What is greenhouse? What are the advantages of using greenhouses?
- Q.2 Give the detail classification of greenhouses based on shape, utility, construction and covering material with neat diagram.
- Q.3 Explain in brief about greenhouse plant response to light and ventilation.
- Q.4 Discuss in brief about the factors considered for site selection of greenhouse.
- Q.5 Enlist the covering material used for greenhouse. State the properties of an ideal greenhouse covering material.
- Q.6 List out the different irrigation systems used in greenhouse. Explain the drip irrigation system in detail.
- Q.7 Define drying. What are the advantages of grain drying?
- Q.8 The moisture content of a paddy sample was determined in dry basis (%) was observed to be 24. Convert the dry basis (%) moisture content to wet basis (%) moisture content.
- Q.9 Enlist different types of dryers. Explain the construction and working of Baffle dryer with neat diagram.
- Q.10 Enlist the different material handling equipments. Explain the working principle of screw conveyor.

SECTION 'B'

- Q.11 Define the following terms:

- |                                 |                |
|---------------------------------|----------------|
| 1) Greenhouse effect            | 2) Glazing     |
| 3) Equilibrium moisture content | 4) Dehydration |

- Q.12 Fill in the blanks:

- 1) The light intensity is measured by the international unit, known as \_\_\_\_\_.
- 2) The production of carbohydrates from carbon dioxide and water in the presence of chlorophyll, using light energy, is known as \_\_\_\_\_.
- 3) In deep bed drying, the grains are spread in a layer more than \_\_\_\_\_ cm.
- 4) A \_\_\_\_\_ is an endless belt, operating between two pulleys with its load supported on idlers.





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SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	VI (New)	Term	Second	Academic Year	2022-23
Course No.	ENTO 365	Title	Management of Beneficial Insects		
Credits	2 (1+1)	Time	14:00 to 16:00 hrs.	Total Marks	40
Day & Date	Saturday, 08.07.2023				

- 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 diagram wherever necessary.

SECTION 'A'

- Q.1 Outline the scope and importance of beneficial insects in agriculture using appropriate examples.
- Q.2 Discuss different types of bees with their important characters.
- Q.3 Briefly explain chawki or the early rearing of mulberry silkworms with respect to feeding care, bed cleaning, moulting and hygiene.
- Q.4 Describe different methods of pruning mulberry plant and harvesting of mulberry leaves.
- Q.5 Enlist different pests and diseases of silkworm along with their management.
- Q.6 Enumerate various forms of lac and their uses.
- Q.7 Illustrate ideal characteristics of bioagents of insect-pests.
- Q.8 Comment on successful examples of biological control in India.
- Q.9 Describe mass multiplication and field release techniques for *Cryptolaemus montrouzieri*.
- Q.10 Write short notes on (Any Two):
- a) Pollinators and scavengers
  - b) Steps in production of *Trichogramma* sp.
  - c) Diseases of honey bees
  - d) Predatory and parasitic orders

SECTION 'B'

Q.11 Define the following terms:

- 1) Apiculture
- 2) Sericulture
- 3) Parasitoid
- 4) Predator

Q.12 Match the pairs:

'A'

'B'

- 1) Central Sericulture Research and Training Institute
  - 2) Indian Institute of Natural Resins and Gums
  - 3) National Bureau of Agricultural Insect Resources
  - 4) Central Bee Research and Training Institute
- a) Namkum (Ranchi)
  - b) Mysuru
  - c) Pune
  - d) Bengaluru



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SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	: VI (New)	Term	: Second	Academic Year	: 2022-23
Course No.	: FST 362	Title	Principles of Food Science and Nutrition		
Credits	: 2 (2+0)	Time	: 14:00 to 17:00 hrs.	Total Marks	: 80
Day & Date	Monday, 10.07.2023				

- 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 diagram wherever necessary.

SECTION 'A'

- Q.1 Define food. Give the objectives of food science and write in detail any three physical properties of food.
- Q.2 Explain the sensory properties of food.
- Q.3 Enlist the components of food. Write physical properties and importance of water.
- Q.4 Define carbohydrates and give its classification.
- Q.5 Explain in detail the functions and sources of vitamins.
- Q.6 Enlist the groups of important bacteria. Discuss any four of them.
- Q.7 What is food preservation? Write the principles of food preservation and methods of drying.
- Q.8 Define malnutrition. Explain causes and prevention of malnutrition.
- Q.9 What is fortification of food? Write its benefits and types.
- Q.10 What is menu planning? Give principles of planning diets and discuss protein metabolism.

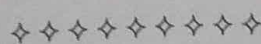
SECTION 'B'

- Q.11 Define the following terms:

- |               |               |                      |                  |
|---------------|---------------|----------------------|------------------|
| 1) Health     | 2) Nutrition  | 3) Under nutrition   | 4) Nutrient      |
| 5) Metabolism | 6) Absorption | 7) Food microbiology | 8) Food spoilage |

- Q.12 State True or False:

- 1) Microorganisms that easily grow and tolerate high temperature, are known as thermophilic microorganisms.
- 2) Goiter is caused due to deficiency of iodine.
- 3) Osteomalacia disease occurs due to lack of vitamin D.
- 4) The introduction of high yielding varieties of seeds after 1965 along with increased use of fertilizers and better irrigation is collectively known as yellow revolution.
- 5) Mid day meal programme was started in the year 1970.
- 6) Long form of WHO is World Health Organization.
- 7) Antoine Lavoisier is called as 'Father of Nutrition'.
- 8) World Food Day is celebrated on 5<sup>th</sup> December every year.



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B.Sc.(Hons.) Agriculture

Semester	: VI (New)	Term	: Second	Academic Year	: 2022-23
Course No.	: GPB 366	Title	: Crop Improvement - II (Rabi crops)		
Credits	: 2 (1+1)	Time	: 14:00 to 16:00 hrs.	Total Marks	: 40
Day & Date	: Tuesday, 11.07.2023				

- 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 diagram wherever necessary.

SECTION 'A'

- Q.1 Describe in detail hybridization techniques in Mango. Give constraints encountered in Mango hybridization.
- Q.2 Describe the floral biology of Chickpea. Write its breeding objectives.
- Q.3 Define stability. Enlist the different models of stability and explain Eberhart and Russell model.
- Q.4 Give the centre of origin and scientific names of the following crops:  
a) Maize                      b) Cotton                      c) Mustard                      d) Sunflower
- Q.5 Define gene pool. Describe various methods of germplasm conservation.
- Q.6 Give the information of Sugarcane and Linseed on the following points:  
a) Wild relatives    b) Mode of pollination    c) Improved varieties    d) Inflorescence
- Q.7 Define ideotype. Describe the plant ideotype for Wheat.
- Q.8 Enlist the different breeding methods used in Sunflower. Write about the head to row and remnant seed method used for increasing the oil content in Sunflower.
- Q.9 Enlist the different cultivated species of Wheat along with its chromosome numbers. Describe the multiline development in Wheat.
- Q.10 Write short notes on (Any Two):  
a) Mutation                      b) NBPGR                      c) Primary gene pool

SECTION 'B'

- Q.11 Define the following terms:  
1) Isolation distance    2) Rouging    3) Plant introduction    4) Seed
- Q.12 Fill in the blanks:  
1) The botanical name of Linseed is \_\_\_\_\_.  
2) In Bajra, cross pollination occurs due to \_\_\_\_\_ condition.  
3) Male part of maize is known as \_\_\_\_\_.  
4) The full form of PPVFR is \_\_\_\_\_.





MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	: VI (New)	Term	: Second	Academic Year	: 2022-23
Course No.	: HORT 366	Title	: Post-harvest Management and Value Addition of Fruits and Vegetables		
Credits	: 2 (1+1)	Time	: 14:00 to 16:00 hrs.	Total Marks	: 40
Day & Date	: Wednesday, 12.07.2023				

- 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 diagram wherever necessary.

SECTION 'A'

- Q.1 Write the scope for post-harvest management and value addition of fruits and vegetables with suitable examples.
- Q.2 Explain zero energy cool chamber storage of fruits and vegetables with diagram.
- Q.3 Define ripening. Write in brief about important physico-chemical changes occurring during ripening.
- Q.4 Enlist modern methods of storage for fruits and vegetables. Write in brief about working of controlled atmospheric (CA) storage, its advantages and disadvantages.
- Q.5 Enlist different pre-harvest factors affecting post-harvest quality of fruits and vegetables and elaborate impact of environmental factors on post-harvest life with examples.
- Q.6 Write short notes on (Any Two):
- a) Importance of packaging material
  - b) Methods for hastening delaying ripening process
  - c) Modified Atmospheric Packaging (MAP)
- Q.7 Write are the FPO specifications of tomato ketchup? Write the procedure for preparation of tomato ketchup.
- Q.8 Describe the procedure for preparation of jelly from Guava fruits.
- Q.9 Give flow sheet for preparation of Grape wine.
- Q.10 Enlist different methods of preservation of fruits and vegetables. Describe preservation by salt.

SECTION 'B'

- Q.11 Fill in the blanks:

1) Ethylene is produced from an essential amino acid, named as \_\_\_\_\_.

2) MOFPI stands for \_\_\_\_\_.

3) An ideal fruit for making jelly should be rich in \_\_\_\_\_.

4) \_\_\_\_\_ is an example of Class II preservative used for preservation in fruit products.

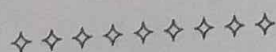
- Q.12 Spell-out the following abbreviations:

1) CFTRI

2) RTS

3) PLW

4) IIP





MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	: VI (New)	Term	: Second	Academic Year	: 2022-23
Course No.	: PATH 365	Title	: Diseases of Field and Horticultural Crops and their Management-II		
Credits	: 3 (2+1)	Time	: 14:00 to 17:00 hrs.	Total Marks	: 80
Day & Date	: Thursday, 13.07.2023				

- 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 diagram wherever necessary.

SECTION 'A'

- Q.1 Draw neat labeled diagram of disease cycle and causal organism of following diseases (Any Two):
- a) Loose smut of wheat      b) Powdery mildew of grape      c) Leaf rust of wheat
- Q.2 Describe symptoms and suggest suitable management practices for following diseases:
- a) Downy mildew of sunflower      b) Downy mildew of grapevine
- Q.3 Describe symptoms and suggest suitable management practices for following diseases (Any Two):
- a) White rust of mustard      b) Red rust of mango      c) Black stem rust of wheat
- Q.4 Describe symptoms and give management practices for following diseases (Any Two):
- a) Linseed rust      b) Gram wilt      c) Turmeric leaf spot
- Q.5 Enlist any four diseases of cotton with causal organisms and describe symptoms, epidemiology. Suggest suitable management practices for Black arm of cotton.
- Q.6 Write short notes on (Any Two):
- a) Black leaf spot of rose      b) Fruit rot of chilli      c) Bulb and neck rot of garlic
- Q.7 a) Enlist diseases of sugarcane. Describe symptoms and suggest suitable management practices for Whip smut of sugarcane.
- b) Enlist diseases of onion. Describe symptoms and suggest suitable management practices for Purple blotch.
- Q.8 a) Enlist diseases of cucurbits. Describe symptoms and suggest suitable management practices for Downy mildew.
- b) State any four diseases of potato with causal organisms. Describe symptoms and suggest suitable management practices for Late blight of potato.

(P.T.O.)

- Q.9 a) Enlist any four diseases of citrus with causal organisms. Describe symptoms and management practices for Citrus canker.  
b) State any four diseases of apple with causal organisms. Describe symptoms and management practices for Fire blight of apple.
- Q.10 Write down causal organism and mode of transmission of following diseases:  
a) Cucumber mosaic    b) Grape fan leaf    c) Citrus exocortis    d) Apple mosaic

#### SECTION 'B'

Q.11 Answer the following in one sentence:

- 1) Which mango disease is caused by Algae pathogen?
- 2) On which side of leaf, aeciospores of Wheat rust fungi are borne?
- 3) How many spores are produced by Macro cyclic rust?
- 4) Write down causal organism of Leaf spot of strawberry.
- 5) Give required time and temperature for hot water treatment for Loose smut of wheat.
- 6) Which is the vector for Fan leaf disease of grapevine?
- 7) Which is a vector for Citrus greening disease?
- 8) Name the parasitic weed in mango crop.

Q.12 State True or False:

- 1) Powdery mildew of pea is *Erysiphe pisi*.
- 2) Peach leaf curl is caused by virus.
- 3) Rust of lentil is caused by *Uromyces viciae-fabae*.
- 4) Barberry is alternate host of Black stem rust of wheat in India.
- 5) Coriander stem galls are caused by *Protomyces macrospores*.
- 6) Leaf curl of chilli is transmitted by thrips vector.
- 7) Citrus Tristeza disease is caused by *Toxoptera citricida*.
- 8) White rust is systemic disease in cucurbit crops.





MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END THEORY EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	: VI (New)	Term	: Second	Academic Year	: 2022-23
Course No.	: ELE-SSAC 364	Title	: Agrochemicals		
Credits	: 3 (2+1)				
Day & Date	: Friday, 14.07.2023	Time	: 14:00 to 17:00 hrs.	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 diagram wherever necessary.

SECTION 'A'

- Q.1 Enlist the factors to be considered, while direct application of rock phosphate.
- Q.2 State the physical and chemical properties of muriate of potash.
- Q.3 What are complex fertilizers? Explain in short the main characteristics of complex fertilizer.
- Q.4 a) What are the fertilizer sources for supplying secondary nutrients and micronutrients?  
b) State the reasons of increasing need of micronutrient fertilization.
- Q.5 a) State the mechanisms of pesticide resistance.  
b) Explain in short the mode of action of sulphur fungicide.
- Q.6 a) Classify nitrogenous fertilizers with examples.  
b) State the management considerations for nitrogen fertilizer.
- Q.7 Classify insecticides based on their chemical nature with example of each class.
- Q.8 Classify fungicides on the basis of chemical nature and give example of each class.
- Q.9 Explain in short the general mode of action of herbicides.
- Q.10 Explain the biochemical processes affected by the action of herbicide.

SECTION 'B'

Q.11 Do as directed:

- 1) State the chemical formula of Urea.
- 2) Define: Straight fertilizer.
- 3) Give the action of acaricide.
- 4) Give an example of chelate form of nutrient.
- 5) State the example of liquid N fertilizer.
- 6) Zinc content in zinc sulphate heptahydrate is \_\_\_\_\_ %.
- 7) Give one example of systemic herbicide.
- 8) In which year Fertilizer Control Act was first implemented in India?

(P.T.O.)

Q.12 Match the pairs:

**'A'**

- 1) DAP
- 2) MOP
- 3) Pyrethrum
- 4) Phosphorus
- 5) Neem
- 6) Growth Inhibitor
- 7) Amide
- 8) Fungicide

**'B'**

- a) VAM
- b) Bordeaux mixture
- c) Azadirachtin
- d) 18 : 46 : 0
- e) Chrysanthemum
- f) Urea
- g) Absciscic acid
- h) KCl





Q.12 Match the pairs:

'A'

- 1) DAP
- 2) MOP
- 3) Pyrethrum
- 4) Phosphorus
- 5) Neem
- 6) Growth Inhibitor
- 7) Amide
- 8) Fungicide

'B'

- a) VAM
- b) Bordeaux mixture
- c) Azadirachtin
- d) 18 : 46 : 0
- e) Chrysanthemum
- f) Urea
- g) Abscissic acid
- h) KCl

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MAHARASHTRA  
SEMESTER

Semester : VI (N)  
Course No: AGR  
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Q.1. Define  
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Q.8.

Q.9

Q.1

a)

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END COMPARTMENT THEORY EXAMINATION  
B.Sc. (Hons.) Agriculture

Version: VI (New)

Course No: AGRO-3612

Credits: 2 (1 + 1)

Day & Date: 24/4/2023

Note:

Term: II

Academic Year: 2022-23

Title: Geo-informatics and Nanotechnology  
and Precision Farming

Time: Total Marks: 40

9.30 to 11.30

- Monday
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"

- Q1. Define precision farming. Explain in detail the reasons for low adoption of precision farming in India?
- Q2. Define GIS. Enlist components of GIS and explain any one in detail.
- Q3. What is STCR approach? Explain the importance of STCR approach in detail.
- Q4. Define soil mapping. Explain in detail the procedure for soil mapping.
- Q5. Define the term geo-informatics. State the principles of the geo-informatics and explain them in detail.
- Q6. Define GPS. Explain in detail the applications of GPS in agriculture.
- Q7. What do you mean by image processing? Give advantages of digital image processing in detail.
- Q8. Define Crop model. Enlist the various types of model and explain any one in detail.
- Q9. Define nano-technology. State its applications in disease management.
- Q10. Write short notes on (Any two)
- a) Remote sensing
  - b) VRT
  - c) Yield mapping

SECTION "B"

Q11. Write full form of

- 1) ISRO    2) PFDC    3) SSNM    4) NDVI

Q12. Fill in the blanks

- 1) \_\_\_\_\_ is the difference between the real and theoretical distance measurement.
- 2) \_\_\_\_\_ is a simple representation of a crop.
- 3) The first talk about nano-technology was given by \_\_\_\_\_.
- 4) Size of a nano-particle is \_\_\_\_\_.



MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD,  
PUNE

SEMESTER END THEORY EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: VI (New)	Term	: Second	Academic Year	: 2022-23
Course No.	: AHDS-364	Title	: Sheep, Goat and Poultry Production		
Credits	: 2(1+1)	Time	: 2 hrs.	14.00 to 16.00	Total Marks : 40
Day Date	: 04.4.2023	(hrs.)			

- 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 disease? Enlist the diseases of Poultry and explain Bird Flu disease
- Q.2. Write in short the difference between sheep and goat.
- Q.3. Describe following breeds using origin, physical and economic characteristic (ANY TWO)  
1. Marwari 2. Gaddi 3. Osmanabadi
- Q.4. Explain in short the importance of sheep goat and poultry production in national economy.
- Q.5. Enlist various system of poultry housing and explain any one
- Q.6. Describe in detail the breeding season in sheep
- Q.7. What are rearing systems of sheep and goat and explain any one of them with its advantages and disadvantages.
- Q.8. Write in brief on care and management of pregnant does/ewes.
- Q.9. Define brooding explain types of brooding
- Q.10. Write short notes on  
1. Flushing  
2. Deep litter system

SECTION 'B'

- Q.11. Fill in the blanks
1. Average fat content in goat milk is-----
  2. Average SNF content in sheep milk is .....
  3. Fine wool diameter ranges from \_\_\_\_\_ to \_\_\_\_\_  $\mu\text{m}$
  4. The breed of goat called as milk queen of the world is-----
- Q.12. Define
1. Docking
  2. Moulting
  3. Kidding
  4. Shearing

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END THEORY EXAMINATION  
B.Sc. (Hons.) Agriculture

Semester	: VI (New)	Term	: Second	Academic Year: 2022-23
Course No	: ENGG-364	Title	: Protected Cultivation and Secondary Agriculture	
Credits	: 2(1+1)			
Day & Date	: 25.4.2023	Time	: 2 hrs. 14:00-16:00	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 What is Greenhouse? Enlist any six advantages of protected cultivation.
- Q.2 Classify various types of polyhouse structures based on shape. Explain the ridge and furrow type of Polyhouse structure.
- Q.3 Explain commonly used materials used to build frames for green houses.
- Q.4 What are the rules of irrigation in polyhouse? Enlist various irrigation methods used in greenhouse.
- Q.5 Explain the Fan and Pad System of evaporative cooling.
- Q.6 a) State the importance of drying  
b) Enlist different commercial dryers .
- Q.7 Calculate the amount of moisture removed in drying 500 kg of paddy at 24 % moisture content (w.b.) when dried to 14 % moisture content (w.b.)
- Q.8 Write short note on LSU dryer.
- Q.9 Enlist important engineering properties of the biological materials and explain the terms of Roundness and Sphericity.
- Q.10 Write note on baffle dryer.

P.T.O



## SECTION 'B'

Q.11. Fill in the blanks.

- 1) In galvanizing the iron or steel for greenhouse construction the surface is coated with a thin layer of ..... to protect it against corrosion.
- 2) ..... is defined as the percentage of volume of inter-grain surface to the total volume of grain bulk.
- 3) ..... is the process of allowing the fresh air to enter into the enclosed area by driving out the air with undesirable properties.
- 4) ..... is generally used for drying of vegetables and similar semi-perishable.

Q.12 State True or False.

- 1) Direct method of moisture determination is more accurate.
- 2) Dehydration is the process of removal of moisture from grains or other products to a predetermined level.
- 3) Eccentricity indicates the sharpness of corners.
- 4)  $\text{CO}_2$  is released by the plants during photosynthesis.

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END THEORY EXAMINATION  
B.Sc. (Hons.) Agriculture

Semester VI(New)  
Course No. ENTO 365  
Credits 2(1+1)  
Day and date 26/4/2023 Time : 2 hrs 30 - 11:30  
(WED)  
Term : Sixth  
Title : Management of Beneficial Insects  
Academic Year : 2022-23  
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 Role of beneficial insects in Agriculture .  
Q.2 What is swarming, enlist the causes of swarming and explain in brief control of swarming?  
Q.3 Pest of silkworm and explain ant two important insect pests.  
Q.4 Enlist types of lac and explain in brief uses of lac.  
Q.5 Enlist the diseases of silkworm and write brief of viral disease of silk worm.  
Q.6 Enlist parasitoid, predators and pathogens with suitable examples.  
Q.7 Write short notes on egg larval parasitoid and larval parasitoid.  
Q.8 Write in brief ectoparasitoid of sucking pests of sugarcane and write in detail mass production procedure.  
Q.9 Define sericulture and write in brief voltinism.  
Q.10 Enlist important bioagents used as weed killers and explain in details of any one of them.

SECTION 'B'

Q 11 Do as directed

1. What is pollinators .
2. The hatched larvae should not be starved and they must be brushed on paraffin paper in a rearing tray or blue polythene sheet (Rearing bed) is called as Brushing ( True / False)
3. Head quarter of Central Silkworm Research and Training Institute
4. .... species is used in Ericulture

Q. 12 Fill in the blanks

1. .... no of native bee species are used as important group of pollinators in North America.
2. .... °C Optimum temperature and..... Relative humidity % is required for silkworm rearing.
3. Artificial cobs was first develop by .....in 1851 in America.
4. .... Quantity of the yield of stingless bee per hive per year.

**MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE**  
**SEMESTER END THEORY EXAMINATION**  
**B.Sc. (Hons.) Agriculture**

Semester	: VI (New)	Term	: II	Academic year	: 2022-23
Course No.	: FST 362	Title	: Principles of Food Science and Nutrition		
Credits	: 2(2+0)				
Day & Date	: 26.4.2023 (WED)	Time (hrs)	: 3 hrs 14:0 - 17:0	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 physical properties of food and explain density. (4)  
b. Define vitamin. Write the sources and deficiency disorders of vitamin C and vitamin D. (4)
- Q.2. a. Define fatty acids and explain unsaturated fatty acids. (4)  
b. Describe the genetically modified foods. (4)
- Q.3. a. Define bioactive. Explain the types of bioactive compounds. (4)  
b. Draw the structure of water. Write the physical properties of water. (4)
- Q.4. a. Write the note on CFTRI and NIN. (4)  
b. Explain the yellow revolution and green revolution national food programmes in India. (4)
- Q.5. a. Write the importance of nanotechnology in food science. (4)  
b. Describe the process of wine making from grapes. (4)
- Q.6. a. Define preservatives and give the role of preservatives in food processing. (4)  
b. State the chemical properties of food and explain browning of food. (4)
- Q.7. a. Define balanced diet and explain low protein and low sodium diet. (4)  
b. How to prevent the microbial decomposition of food? (4)
- Q.8. a. Discuss in brief endemic goiter and fluorosis nutritional disorders. (4)  
b. Explain in brief microwave food processing and pasteurization. (4)
- Q.9. a. Write the classification of carbohydrates with suitable example. (4)  
b. Enlist types of food fortification and explain biofortification. (4)
- Q.10. a. Write the objectives of food science and state the sensory properties of food. (4)  
b. What is malnutrition? Explain it. (4)

**SECTION "B"**

- Q.11. Fill in the blanks (8)
- i. The mid day meal programme was started in the year.....
  - ii. Full form of FAO is.....
  - iii. Xerophthalmia causes due to the deficiency of vitamin.....
  - iv. .... is father of canning.
  - v. One gm fat yields .....Kcal energy.
  - vi. .... are used in wine industry to sanitize equipment and to reduce the normal flora of the grape must.
  - vii. .... is prescribed to the people with kidney disorder.
  - viii. .... and .... bacteria are used for preparation of yogurt.



Q.12 Define the following terms

- i. Protein
- ii. Food additives
- iii. Fermentation
- iv. Nutrition
- v. Antioxidant
- vi. Food microbiology
- vii. Modified diet
- viii. Food science

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD,  
PUNE

SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: VI (New)	Academic Year	: 2022-23
Course No.	: GPB-366	Title	: Crop Improvement-II (Rabi Crops)
Credits	: 2 (1+1)	(THU)	
Day & Date	: 27/4/2023	Time	: 9:30 - 11:30
		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 ideotype breeding and describe in short the important features of ideotype for wheat and maize crop.

Q.2 Define germplasm. Describe in short different kinds of germplasm?

Q.3 Write short notes on the following

- Adaptability
- Breeding objectives of potato

Q.4 Complete the following table

Sr. No.	Crop	Center of origin	Wild relatives	Breeding methods used	Breeding objectives
1	Wheat				
2	Barley				

Q.5 Write in brief information on gram crop on following points  
a) Wild and cultivated species b) Floral biology c) Breeding objectives  
d) Breeding methods used

Q.6 Write in detail the wild species, floral biology, breeding objectives and breeding methods used in Sunflower crop.

Q.7 Explain mango improvement on the basis of its origin, wild species, breeding objectives, constraints in hybridization of mango.

Q.8 Write information on sugarcane crop on following points  
a) Wild and cultivated species b) Chromosome number c) Breeding objectives  
d) Floral biology

Q.9 a) Write in short certified hybrid seed production technology for *rabi* sorghum on following points:

i) Seed rate (A & R Line)	ii) Planting ratio	iii) Isolation distance
b) Complete the seed standard table for <i>rabi</i> sorghum certified seed production		
Sr. No.	Seed standard	Stage : Certified seed
1	Physical purity (%)	
2	Inert matter (%)	
3	Other crop seed	
4	Weed seed	

Q.10 Write major breeding objectives in Guava and Field pea.

P.T.O

SECTION "B"

- Q.11 Do as directed
1. Write chromosome number of Safflower
  2. Write botanical name of Guava
  3. Write centre of origin of Maize
  4. Write family of Rapeseed

- Q.12 Match the pairs
- |                           |                                |
|---------------------------|--------------------------------|
| 1. <i>Hordeum vulgare</i> | a. Three anthers               |
| 2. Linaceae               | b. Berseem                     |
| 3. Oat spikelet           | c. <i>Hordeum spontaneum</i>   |
| 4. King of fodder         | d. <i>Lineum usitatissimum</i> |

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD,  
PUNE

SEMESTER END THEORY EXAMINATION

B.Sc. (Hons) Agriculture

Semester	: VI (New)	Term	: II	Academic year: 2022 – 23
Course No	: HORT - 366			
Credits	: 2(1+1)	Title	: Post Harvest Management and Value	
	(THU)	14:00-16:00	Addition of Fruits and Vegetables	
Day & Date	: 27.4.2023	Time (hrs)	: 2 hrs	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 canning. Enlist the various steps in canning of fruits and vegetables and explain the step of filling and syruing.
- Q.2 Enlist the variouts methods of storage of fruits and vegetables and explain the construction and operation of zero energy cool chamber.
- Q.3 Enlist the various methods of fruit preservation and explain the method of preservation of food by heat.
- Q.4 Enlist the various tomato products and give the standards for preservation of tomato juice.
- Q.5 Define ripening and give short account on the chemical changes occurring during ripening of fruits and vegetables
- Q.6 Enlist the various intermediate moisture foods prepared from fruits and vegetables and give its advantages and disadvantages.
- Q.7 Define pre cooling. Enlist the various methods of pre cooling and explain the method of hydro cooling.
- Q.8 Explain the extent and possible causes of post harvest losses in fruit and vegetables.
- Q.9 Write short notes (Any two).  
1. Fermented beverages 2. Packaging material 3. Role of ethylene in fruit ripening
- Q.10 Enlist various methods of drying and dehydration. Give the flow chart for drying of fruits.

SECTION 'B'.

Q.11 Define the following terms.

1. Respiration
2. Value addition
3. Non fermented beverages
4. Cordial

Q.12 Spell the abbreviations

1. FSSAI
2. CIPHET
3. CFTRI
4. RTS

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END THEORY EXAMINATION  
B.Sc. (Hons.) Agriculture

Semester : VI (New)  
Course No. : PATH 365

Credits : 3 (2+1)

Day and Date : 28.4.2023 (FRI)

Term : VI Academic Year : 2022-2023

Title : Diseases of Field and Horticultural crops  
and their Management-II

Time : 8:30 to 12:30

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 Explain the following diseases on the basis of symptoms, mode of perpetuation, favorable conditions and management.  
a. Citrus canker      b. Powdery mildew of grape
- Q.2 a. Write typical symptoms and management of wilt disease of Gram.  
b. Write symptoms and management of powdery mildew of Pea.
- Q.3 Write the symptoms, favorable conditions, disease cycle and management of anthracnose disease of Cotton.
- Q.4 Write short note on ( Any two)  
a. Sunflower rust      b. Downy mildew of Mustard      c. Fire blight of Apple
- Q.5 Write typical symptoms and management of following diseases.(Any two)  
a. Mosaic diseases of Potato      b. Downy mildew of Cucurbits      c. Turmeric leaf spot
- Q.6 a. Write typical symptoms and management of purple blotch of Onion.  
b. Write typical symptoms and management of Anthracnose of Chilli.
- Q.7 Write typical symptoms of following diseases (Any four)  
a. Neck and bulb rot of Garlic      b. Leaf spot of Strawberry      c. Onion smudge  
d. Alternaria blight of Marigold      e. Powdery mildew of Rose.
- Q.8 Write management on following diseases.(Any four)  
a. Stem gall of Coriander      b. Peach leaf curl      c. Anthracnose of Grape  
d. Cucumber Mosaic      e. Linseed rust
- Q.9 a. Enlist diseases of wheat and explain disease cycle and management of stem rust of wheat.  
b. Explain typical symptoms and management of red rot disease of sugarcane.
- Q.10 Explain in detail powdery mildew disease of Mango.

(P.T.O)



SECTION "B"

Q.11 Fill in the blanks.

1. Yellow rust of wheat is caused by -----.
2. Grassy shoot disease of sugarcane is transmitted by ----- vector.
3. The powdery mildew of mustard caused by *Erysiphe cruciferatum* produce ----- type of mycelium.
4. Rust disease of gram is caused by-----
5. Downy mildew of pea is caused by-----.
6. Primary source of infection in root rot disease of cotton is through-----.
7. Black spot disease of rose is caused by-----.
8. *Loranthus* on mango is -----parasite.

Q. 12. Match the pairs.

A

B

- a. Karnal bunt of wheat
- b. Black arm of cotton
- c. Peach leaf curl
- d. Red onion
- e. Late blight of potato
- f. Citrus Tristeza
- g. Pea rust
- h. Leaf curl of chilly

- i. *Taphrina deformans*
- ii. *Phytophthora infestans*
- iii. *Toxoptera citricidus*
- iv. *Uromyces fabae*
- v. Gemini virus
- vi. Protocatechuic acid
- vii. Angular leaf spot
- viii. *Neovossia indica*

