

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	: I (New)	Term	: I	Academic Year	: 2019-20
Course No.	: HORT 111	Title	: Fundamentals of Horticulture		
Credits	: 2(1+1)	Time	: 10.00 to 12.00	Total Marks	: 40
Day & Date	: Tuesday, 07.01.2020				

- 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 horticulture. Discuss about importance and scope of horticulture.
- Q.2 What are the methods of irrigation in fruit crops? Explain about drip irrigation.
- Q.3 Write short notes. (Any Two)
- a) Classification of horticultural crops based on climate
  - b) Aromatic plants
  - c) Spices and condiments
- Q.4 Define kitchen garden. Explain in brief its objectives and design.
- Q.5 Define plant propagation. Discuss in brief about merits and demerits of asexual method of propagation.
- Q.6 What do you mean by training? Write its methods and explain about any one of them.
- Q.7 What are the different methods of planting system of fruit orchard and explain square system of planting with advantages and disadvantages.
- Q.8 Define unfruitfulness. Enlist internal and external causes of unfruitfulness.
- Q.9 What is lawn? Narrate the different methods of lawn and explain in brief about turfing method.
- Q.10 Enlist different climatic factors for growing fruit orchard. Explain in brief about temperature and rainfall.

SECTION "B"

- Q.11 Define the following terms.
- 1) Parthenocarpy
  - 2) Pruning
  - 3) Fertigation
  - 4) Fertilization
- Q.12 Do as directed.
- 1) Name one recommended book for course with author.
  - 2) Write the two grades of fertilizers.
  - 3) Name of one propagating structures.
  - 4) Write name of one root stock of citrus crop.



MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	: I (New)	Term	: I	Academic Year	: 2019-20
Course No.	: MIBO 111	Title	: Introductory Microbiology		
Credits	: 2(1+1)	Time	: 10.00 to 12.00	Total Marks	: 40
Day & Date	: Wednesday, 08.01.2020				

- 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 Microbiology. Explain importance and scope of microbiology in Agriculture and allied fields with suitable examples.
- Q.2 Define Mycorrhiza. Write its types and benefits to plants.
- Q.3 Draw a neat labeled diagram of bacterial cell. Enlist various internal and external structures. Comment on pili.
- Q.4 Write comparison between prokaryotic and eukaryotic cells.
- Q.5 What is genetic recombination? Enlist different modes of gene transfer in bacteria and explain conjugation in bacteria.
- Q.6
  - a) Define biofertilizer and enlist its types with examples.
  - b) Enlist methods of application of biofertilizers and explain in detail any one.
- Q.7 Explain in detail the Nitrogen cycle.
- Q.8 Define rhizosphere. Describe in detail the factors affecting microflora of rhizosphere.
- Q.9 Explain the importance of single cell protein.
- Q.10 Write short notes. (Any two)
  - a) Bacterial insecticide
  - b) Biodegradation of organic waste
  - c) Cultivation of paddy straw mushroom

SECTION "B"

- Q.11 Write contribution of the following scientists.
  - 1) Robert Koch
  - 2) Winogradsky
  - 3) Alexander Fleming
  - 4) Antony Van Leeuwenhoek
- Q.12 Answer in one sentence.
  - 1) Which gas is produced in methanogenesis?
  - 2) Define biotroph.
  - 3) Which part of bacterial cell is involved in protein synthesis?
  - 4) Matchstick like cell grouping in bacteria is called \_\_\_\_\_.



MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: I (New)	Term	: I	Academic Year	: 2019-20
Course No.	: AHDS 111	Title	: Livestock Production and Management		
Credits	: 2(1+1)	Time	: 10.00 to 12.00	Total Marks	: 40
Day & Date	: Monday, 06.01.2020				

- 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 different livestock development programmes in Indian context. Explain in brief Milk and Milk Products Order (MMPO).
- Q.2 Describe in detail the factors affecting breeding efficiency (Fertility) in cows.
- Q.3 Write in detail care and management of calf. Enlist systems of milk feeding to calf with its merits and demerits.
- Q.4 What is species? Classify Indigenous breeds of cattle according to their utility with suitable examples.
- Q.5 Enlist the bacterial diseases of cattle. Explain in detail Foot and Mouth disease.
- Q.6 Explain in detail reproductive system of cow with neat labelled diagram.
- Q.7 Write short notes.
- a) Draw well labelled diagram of duct system in one quarter of the mammary gland of the cow with a single lobe
- b) Symptoms/signs of oestrus in crossbred cows
- Q.8 Describe in detail body characters and milk yield of following breeds.
- a) Dangi
- b) Holstein Friesian
- Q.9 Elaborate the impact of climate change on livestock reproduction.
- Q.10 What is origin and use of following breeds of buffaloes?
- a) Pandharpuri
- b) Murrah
- c) Jaffarabadi
- d) Mehsana

SECTION "B"

- Q.11 Define the following terms.
- 1) Teaser
- 2) Calving interval
- 3) Bull
- 4) Dry period
- Q.12 Fill in the blanks.
- 1) The funnel shape portion of the oviduct is called \_\_\_\_\_.
- 2) \_\_\_\_\_ is a highly contagious, infectious respiratory disease that is caused by Bovine Herpesvirus-1 (BHV-1).
- 3) Livestock census started in India in the year \_\_\_\_\_.
- 4) The younger female of cattle above age of six months to first calving is called \_\_\_\_\_.



## CULTURAL UNIVERSITIES EXAM SEMESTER END EXAMINATION

**B.Sc.(Hons.) Agriculture**

<b>Semester</b> : I (New)	<b>Term</b> : I	<b>Academic Year</b> : 2019-20
<b>Course No.</b> : AGRO 112	<b>Title</b> : Introductory Agro-Meteorology and Climate Change	
<b>Credits</b> : 2(1+1)		
<b>Day &amp; Date</b> : Saturday, 04.01.2020	<b>Time</b> : 10.00 to 12.00	<b>Total Marks</b> : 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 the term Agricultural Meteorology and describe in detail the scope of Agricultural Meteorology?
- Q.2 Define weather and climate. Differentiate between weather and climate.
- Q.3 What do you mean by weather forecasting? Give the types of weather forecasting and their utility.
- Q.4 What is drought? Enlist various types of drought and discuss the strategies to mitigate the drought.
- Q.5 What is condensation and precipitation? Describe in brief about each form of condensation.
- Q.6 Define radiation. Discuss the factors affecting solar radiation receipt on the earth's surface.
- Q.7 Define cloud. Give the classification of clouds on the basis of their height.
- Q.8 Define the wind and describe in detail forces acting to produce wind.
- Q.9 Define saturated vapor pressure. Give the variation in relative humidity.
- Q.10 Write short notes. (Any Two)
  - a) Remote sensing
  - b) Global warming
  - c) Hydrological cycle

## SECTION "B"

- Q.11 Define the following terms.
- |                         |              |
|-------------------------|--------------|
| 1) Isobars              | 2) Hailstorm |
| 3) Atmospheric pressure | 4) Fog       |
- Q.12 Fill in the blanks.
- 1) The plant canopy temperature is measured by an instrument named as \_\_\_\_\_.
  - 2) The particles that are dispersed in the atmosphere are called \_\_\_\_\_.
  - 3) \_\_\_\_\_ coloured soil absorb more radiation from the sun.
  - 4) The direction towards which wind blows is called \_\_\_\_\_.





MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc.(Hons.) Agriculture/ A.B.M./ B.Tech. (Bio-Technology)

Semester	: 1 (New)	Term	: I	Academic Year	: 2019-20
Course No.	: HVE 111/HD 111	Title	: Human Values and Ethics/ Human Ethics		
Credits	: 1(1+0)	Time	: 10.00 to 12.00	Total Marks	: 40
Day & Date	: Friday, 03.01.2020				

- 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 do you mean by stress? Explain techniques to overcome it.
- Q.2 What is SWOT? Analyze your SWOT with examples.
- Q.3 Define team work. Write the good reasons of team work.
- Q.4 What is attitude? Explain the benefits of positive attitude.
- Q.5 Define spirituality and write the characteristics of spiritual wellbeing.
- Q.6 Write the few important road safety tips.
- Q.7 Explain the issues in environmental ethics.
- Q.8 Define value. Write the core of fundamental value and explain any two of them.
- Q.9 Write measures needed to be taken to control elder abuse.
- Q.10 What do you mean by ethics? Explain the significance of ethics.

SECTION "B"

- Q.11 Define the following terms.

- |                        |                      |
|------------------------|----------------------|
| 1) Human right         | 2) Scientific temper |
| 3) Professional ethics | 4) Intrinsic value   |

- Q.12 Fill in the blanks.

- 1) Sub ways, zebra crossing, foot over bridge should be used to \_\_\_\_\_.
- 2) Anger can occur when person feels their \_\_\_\_\_ are being to be violated.
- 3) \_\_\_\_\_ is the fundamental value in relationship.
- 4) \_\_\_\_\_ implies duty with care and efforts.



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

**B.Sc.(Hons.) Agriculture**

<b>Semester</b> : I (New)	<b>Term</b> : I	<b>Academic Year</b> : 2019-20
<b>Course No.</b> : AGRO 111	<b>Title</b> : Fundamentals of Agronomy- I	
<b>Credits</b> : 2(1+1)	<b>Time</b> : 10.00 to 12.00	<b>Total Marks</b> : 40
<b>Day &amp; Date</b> : Thursday, 09.01.2020		

- 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 term Agronomy and write the role of Agronomist.
- Q.2 Write characteristics of good quality seed and explain objects of seed treatment.
- Q.3 Elaborate the term 'tillage' and enlist the objectives of tillage.
- Q.4 Explain the role of manures and fertilizers in soil, water and crop management.
- Q.5 Enlist the different base of classification of weeds and write classification of weeds on the basis of ontogeny with suitable examples.
- Q.6 Explain the effects of plant population on crop growth and yield. Enlist different planting geometry useful in manipulation of plant population.
- Q.7 Define crop rotation. Explain the advantages of crop rotation.
- Q.8 Define plant ideotype and describe in brief different types of plant ideotypes.
- Q.9 Enlist methods of sowing of agronomic crops and describe any one method of sowing of crops propagated by seeds with its advantages and disadvantages.
- Q.10 Write short notes. (Any Two)
- a) Multiplication stages of seeds
  - b) Characteristics of weeds
  - c) Relation of agronomy to other sciences

**SECTION "B"**

- Q.11 Define the following terms.
- 1) Puddling
  - 2) Seeds
  - 4) Soil amendment
  - 4) Plant nutrients
- Q.12 Do as directed.
- 1) Vaidya, V.G; Sahasrabudhe, K.R. and Khuspe, V.S.wrote the text book entitled \_\_\_\_\_.
  - 2) Earthing up is secondary tillage operation (State True or False)
  - 3) Seed cotton is harvested by \_\_\_\_\_ operation.
  - 4) Write the following operations in sequence as they are performed.  
Seedbed preparation, Treatment of setts, FYM application, Planting





MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc.(Hons.)- Agriculture/Horticulture/Forestry/A.B.M./Community Science/Animal Husbandry/  
B.Tech. (Biotechnology)/ B.F.Sc./B.Tech. (Engineering)

Semester	: I (New)	Term	: I	Academic Year	: 2019-20
Course No.	: DEG 111/CNC 111	Title	: Democracy, Elections and Good Governance		
Credits	: 1(1+0)	Time	: 10.00 to 12.00	Total Marks	: 40
Day & Date	: Thursday, 02.01.2020				

- 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 the fundamental rights of Indian Constitution and describe in brief any two of them.
- Q.2 Describe the powers and duties of Gram Panchayat.
- Q.3 Enlist the principles of democracy in India and explain any one of them.
- Q.4 Define democracy decentralization and explain the feature of decentralization.
- Q.5 Write in detail about three-tier structure of Panchayat Raj.
- Q.6 Describe attributes of poor Governance.
- Q.7 Describe functions of Zilla Parishad.
- Q.8 Explain the power of Election Commission of India.
- Q.9 Enlist the different types of democracy and explain any one of them.
- Q.10 Write short notes. (Any Two)
- a) Composition of Panchayat Raj
  - b) Constitutional provision of 73<sup>rd</sup> and 74<sup>th</sup> Amendment Act
  - c) Challenges of Democracy

SECTION "B"

- Q.11 Define the following terms.

- |               |                       |
|---------------|-----------------------|
| 1) Democracy  | 2) Election           |
| 3) Governance | 4) Fundamental rights |

- Q.12 Fill in the blanks.

- 1) Legislature assembly of Maharashtra (Vidhan Sabha) has \_\_\_\_\_ members.
- 2) The word Republic is derived from \_\_\_\_\_ word.
- 3) The election commission of India constituted in the year \_\_\_\_\_.
- 4) The word democracy is derived from \_\_\_\_\_ word.



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

**B.Sc.(Hons.) Agriculture/B.Sc.(Hons.) Forestry/ B.Sc. (Hons.) A.B.M.**

<b>Semester</b> : I (New)	<b>Term</b> : I	<b>Academic Year</b> : 2019-20
<b>Course No.</b> : MATH 111	<b>Title</b> : Elementary Mathematics	
<b>Credits</b> : 2(1+1)		
<b>Day &amp; Date</b> : Tuesday, 31.12.2019	<b>Time</b> : 14.00 to 16.00	<b>Total Marks</b> : 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 formula of Simpson's rule to find the area whose ordinates and common distance is given.
- Q.2 Explain any four types of functions with one example.
- Q.3 Find the equation of straight line passing through the two points.  
P (1, 2) and Q (4, 3).
- Q.4 Find the equation of a circle whose centre is (- 5, - 6) and radius is 10.
- Q.5 State the theorems or rules of Differentiations.
- Q.6 State the theorems or rules of Integrations.
- Q.7 Find the Area bounded by curve  $y = \sin x$  about the x-axis and ordinates  $x = 0, x = \frac{\pi}{2}$ .

Q.8 Evaluate 
$$\begin{vmatrix} 2 & 3 & 1 \\ 0 & 1 & 2 \\ 5 & -3 & 4 \end{vmatrix}$$

Q.9 If  $A = \begin{bmatrix} 3 & 6 & 6 \\ 6 & 3 & 6 \\ 6 & 6 & 3 \end{bmatrix}$  Show that  $A^2 - 12A$  is a Scalar Matrix.

Q.10 Evaluate the Limit,  $\lim_{x \rightarrow 2} \frac{x^3 - 8}{x^5 - 32}$ .

**SECTION "B"**

- Q.11 Define the following terms.
- 1) Determinant of Third order
  - 2) Scalar matrix
  - 3) Circle
  - 4) Derivative of a function
- Q.12 Fill in the blanks.
- 1) The slope of straight line  $y - 2x + 3 = 0$  is \_\_\_\_\_.
  - 2) The radius of the circle  $x^2 + y^2 = 25$  is \_\_\_\_\_.
  - 3)  $y = e^x$  is \_\_\_\_\_ type of function.
  - 4)  $\int dx =$  \_\_\_\_\_.





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

**B.Sc.(Hons.) Agriculture/B.Sc.(Hons.)(Forestry)/ B.Sc.(Hons.) A.B.M./ B.Sc.(Hons.) C.S.**

Semester	: I (New)	Term	: I	Academic Year	: 2019-20
Course No.	: LANG 111	Title	: Comprehension and Communication		
Credits	: 2(1+1)		: Skills in English		
Day & Date	: Wednesday, 01.01.2020	Time	: 10.00 to 12.00	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 are your expectations when you come to the university? Can you specify at least five important ones?
- Q.2 Why the Employment exchanges are called 'Exchanges'? What is exchanged in them?
- Q.3 What is a Curriculum Vitae? Give the format of Curriculum Vitae.
- Q.4 What are the reasons for many candidates failing at interviews?
- Q.5 Are you interested in astronomy? If you are to ask astronomer some questions about the universe, which questions will you ask? Ask at least five questions.
- Q.6 Imagine you are a psychiatrist. What questions you might ask in the following situations.
- a) A teenager who has made a suicide attempt.
  - b) A thirty-year actress who has taken to drinking heavily.
- Q.7 Why industries are quite often located in coastal areas?
- Q.8 What according to Thurber, is the risk involved in using 'only' at the beginning of a sentence?
- Q.9 Playing games is simply a waste of time. Do you agree?
- Q.10 How can our search for truth bring our civilization to the brink of destruction?

**SECTION "B"**

- Q.11 Who were these people? Complete the following sentences choosing the right item from the list given below. Add a/an/the where necessary:
- a) Wole Soyinka is \_\_\_\_\_.
  - b) Baba Amte is \_\_\_\_\_.
  - c) Pandit Ravi Shankar is \_\_\_\_\_.
  - d) Yasser Arafat is \_\_\_\_\_.

List given,

- i) Hindustani singer and composer
- ii) Organizer of social awareness movements
- iii) Nobel prize winner for literature
- iv) Leader of the Palestinian refugees

**(P.T.O.)**

Q.12 Match the following pairs.

'A'

- 1) Petrol
- 2) Flat
- 3) Full stop
- 4) Lift

'B'

- a) Apartment
- b) Elevator
- c) Gas
- d) Period





# MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE

## SEMESTER END EXAMINATION

**B.Sc.(Hons.) Agriculture/ B.Sc.(Hons.) A.B.M./ B.Tech. (Food Tech.)**

semester	: I (New)	Term	: I	Academic Year	: 2019-20
course No.	: BIO 111	Title	: Introductory Biology		
credits	: 2(1+1)	Time	: 10.00 to 12.00	Total Marks	: 40
day & Date	: Tuesday, 31.12.2019				

- 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 Define cell. Enlist various parts of plant cell with a diagram.
- Q.2 State Mendel's laws. Explain any one with suitable example.
- Q.3 Describe modifications of root with suitable example.
- Q.4 What do you mean by living organism? Explain the characteristics of living organisms.
- Q.5 Define flower. Describe the different parts of a typical flower with a neat labeled diagram.
- Q.6 Write short notes (Any Two).
- a) Theories of evolution
  - b) Inflorescence
  - c) Binomial nomenclature
- Q.7 Differentiate between. (Any Two)
- a) Mitosis and Meiosis
  - b) Tap root system and adventitious root system
  - c) Dicotyledonous and monocotyledonous seed
- Q.8 Define taxonomy. Describe in brief various taxonomic categories.
- Q.9 Describe in brief plant family fabaceae.
- Q.10 Define seed germination. Explain in brief its types with suitable example.

### SECTION "B"

- Q.11 Define the following terms.
- 1) Crossing over
  - 2) Phyllotaxy
  - 3) Perianth
  - 4) Eugenics
- Q.12 Fill in the blanks.
- 1) \_\_\_\_\_ is a water conducting tissue in plants.
  - 2) A series of changes or sequential events which occur regularly in a dividing cell is called \_\_\_\_\_.
  - 3) A flower without pedicel is called \_\_\_\_\_ flower.
  - 4) The stilt roots occur in \_\_\_\_\_ crop.



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

**B.Sc.(Hons.) Agriculture**

<b>Semester</b> : I (New)	<b>Term</b> : I	<b>Academic Year</b> : 2019-20
<b>Course No.</b> : SSAC 111	<b>Title</b> : Fundamentals of Soil Science	
<b>Credits</b> : 3(2+1)	<b>Time</b> : 10.00 to 13.00	<b>Total Marks</b> : 80
<b>Day &amp; Date</b> : Monday, 30.12.2019		

- 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) Write the kinds of soil pollution.  
b) What are the soil moisture constants?
- Q.2 a) Define soil aeration. Give the composition of soil air and atmospheric air.  
b) State factors affecting soil temperature.
- Q.3 a) Write in brief about measurement of soil colour.  
b) Write down the importance of soil water.
- Q.4 a) State the effect of soil colour on soil condition.  
b) Give biological classification of soil water.
- Q.5 a) Write the source of soil organic matter and give composition of plant residues.  
b) Enlist different soil forming processes. Explain in brief one specific soil forming process.
- Q.6 a) State land capability classes.  
b) Explain the significance of C:N ratio.
- Q.7 a) Define soil science. What are the major disciplines or branches of soil science?  
b) Write importance of cation exchange.
- Q.8 a) Write down the differences between particle density and bulk density.  
b) State the importance of soil structure.
- Q.9 a) Define soil colloids and write in detail types of soil colloids.  
b) Define sedimentary rock and classify in brief.
- Q.10 a) Define soil structure and give its types in brief.  
b) Explain in brief about master soil horizons.

**(P.T.O.)**



## SECTION "B"

Q.11 Match the following pairs.

'A'

- 1) Stokes' Law
- 2) Silt and sand
- 3) Primary mineral
- 4) Climate
- 5) Heavy mineral
- 6) Mohr's scale
- 7) Acidic rock
- 8) Intrusive

'B'

- a) Skeleton of soil
- b) Active soil forming factor
- c) Feldspar
- d) Soil texture
- e) Hardness of mineral
- f) Granite
- g) Sp. Gr. > 2.85
- h) Plutonic

Q.12 Fill in the blanks.

- 1) Conversion of limestone to marble is an example of \_\_\_\_\_ rock.
- 2) According to International scale 0.20 to 0.02 mm diameter soil separates is \_\_\_\_\_.
- 3) The colour of powder of the mineral is called \_\_\_\_\_.
- 4) Soils having more than 20% of organic constituents are designated as \_\_\_\_\_.
- 5) The particles less than \_\_\_\_\_ mm size possess colloidal properties.
- 6) The solid phase of soil is also called \_\_\_\_\_.
- 7) The intrusive rocks consolidated in horizontal cracks or planes are called \_\_\_\_\_.
- 8) Topography is a \_\_\_\_\_ soil forming factor.



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

**B.Sc.(Hons.) Agriculture**

Semester	: I (New)	Term	: I	Academic Year	: 2019-20
Course No.	: AGH 111	Title	: Agricultural Heritage		
Credits	: 1(1+0)	Time	: 10.00 to 12.00	Total Marks	: 40
Day & Date	: Saturday, 28.12.2019				

- 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 Define heritage. Describe agriculture heritage in India.
- Q.2 Describe the status of agriculture in Neolithic and Chalcolithic age.
- Q.3 Describe the status of farmers in Harappan civilization period.
- Q.4 Describe in brief various Indigenous agriculture technologies developed in India.
- Q.5 Write about voyage of rice and cotton crops.
- Q.6 Explain the importance of agriculture in India.
- Q.7 What are the different agriculture resources? Explain in brief the Indian land resources.
- Q.8 Enlist the basis of crop classification and describe the classification on the basis of growing season.
- Q.9 Describe the status of modern agriculture in India.
- Q.10 Write short notes.
- a) National agriculture set up                      b) Krishi Parashara

**SECTION "B"**

- Q.11 Write meaning of the following in one sentence.
- 1) History                                              2) Pulse crop
- 3) ITK                                                      4) Seasonal crop
- Q.12 Do as directed.
- 1) Neolithic is known as the 'Early Food Producing Era'. (Write 'True or False')
- 2) Which period of agriculture was developed in Madurai?
- 3) Name the place where the cotton fabrics were recovered approximately 3000 BC.
- 4) Spell out the abbreviation – ICAR



MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc.(Hons.) Agriculture

Semester	: I (New)	Term	: I	Academic Year	: 2019-20
Course No.	: EXTN 111	Title	: Rural Sociology and Educational Psychology		
Credits	: 2(2+0)	Time	: 10.00 to 13.00	Total Marks	: 80
Day & Date	: Thursday, 26.12.2019				

- 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 interrelationship between Rural Sociology and Extension Education.
- Q.2 Explain scope and importance of Rural Sociology in agricultural extension.
- Q.3 Define the term social group. Write classification of social group and explain in detail any one.
- Q.4 Define the term culture and explain role of culture in agricultural extension.
- Q.5 Define the term social institution. Write major types of institutions and explain functions of family as an institution.
- Q.6 Explain the elements of learning situation with a suitable diagram.
- Q.7 Define the term personality and explain factors influencing personality.
- Q.8 Write the types and important characteristics of organization.
- Q.9 Define the term leader. State in brief the types of leaders with suitable examples.
- Q.10 Define the term intelligence and describe factors affecting intelligence.

SECTION "B"

- Q.11 State True or False.
- 1) Culture forms a part of psycho social environment.
  - 2) Rituals are the practices and ceremonies followed by the society.
  - 3) Urban society is complex and multigroup society.
  - 4) Caste is an example of open class system.
  - 5) Crowd is an example of permanent group.
  - 6) Attitudes are formed in relation to values and objects.
  - 7) Institutions are formed for fulfillment of primary needs.
  - 8) Social values regulate human behavior in a society.



Q.12 Match the following pairs.

**'A'**

- 1) Psychology
- 2) Motivation
- 3) Norms
- 4) Taboos
- 5) Religion
- 6) Introvert
- 7) Extrovert
- 8) Perception

**'B'**

- a) Expresses emotions read
- b) Set of belief in supernatu
- c) Do not express emotions
- d) Blue prints of behaviour
- e) Interpretation of received i
- f) Goal directing behaviour
- g) Science of human mind
- h) Expresses negative type of



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

**B.Sc. (Hons.) Agriculture/ Forestry**

Semester : III (New)	Term : I	Academic Year : 2019-20
Course No. : ESDM 231/ EVS 231	Title : Environmental Studies and Disaster Management	
Credits : 3(2+1)		
Day & Date : Wednesday, 06.11.2019	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"**

1. Define the term 'Biodiversity' Give its classification and explain in detail about the conservation of biodiversity.
2. Define pollution. Enlist different types of pollution and explain the causes, effects and control measures of water pollution.
3. What is ecosystem? Give the classification of ecosystem and explain in brief the grassland ecosystem.
4. Define Disaster. Give detail classification of disaster. Explain in brief about flood disaster.
5. Define environmental studies. Write its scope and importance.
6. What is greenhouse effect? Explain impact of global warming on agriculture.
7. Enlist different acts. Write in brief the salient features of Environment (protection) Act, 1986.
8. What is disaster management?
  - a) Explain different phases of disaster management.
  - b) Explain the role of NGOs in disaster management.
9. Define natural resources. Classify the natural resources with examples and give in brief the importance of forest resources.
10. Write short notes:
  - a) Ecological Pyramid
  - b) Carbon sequestration

**SECTION "B"**

- Q.11 a) Define the following terms.
- 1) Endangered species
  - 2) Biosphere
  - 3) Food chain
  - 4) Habitat

**(P.T.O.)**

b) Give full forms of the following.

1) AIDS

2) IPCC

3) WHO

4) BSI

Q.12 Fill in the blanks.

- 1) The environment which has been modified by human activities is called \_\_\_\_\_ environment.
- 2) Short term properties of the atmosphere at a given place and time is referred as \_\_\_\_\_.
- 3) Extensive planting of trees to increase cover is called \_\_\_\_\_.
- 4) The area reserved for welfare of wildlife is called \_\_\_\_\_.
- 5) The pyramid of \_\_\_\_\_ is always upright.
- 6) The unit used for measuring the intensity of earthquakes is \_\_\_\_\_.
- 7) The World Environment Day is celebrated on \_\_\_\_\_.
- 8) The thinning of stratosphere ozone layer during the spring time is called \_\_\_\_\_.





MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: III (New)	Term	: I	Academic Year	: 2019-20
Course No.	: AGRO 234	Title	: Crop Production Technology –I ( <i>Kharif</i> Crops)		
Credits	: 2 (1+1)	Time	: 09.00 to 11.00	Total Marks	: 40
Day & Date	: Tuesday, 05.11.2019				

- 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 in detail the cultivation of Cotton on the following aspects.
- a) Soil and climate
  - b) Inter-cultivation
  - c) Quality parameters
  - d) Harvesting and yield
- Q.2 Discuss in detail the cultivation of Pigeonpea on the following points.
- a) Seed and sowing
  - b) Rotation and mixed cropping
  - c) Fertilizer management
  - d) Harvesting and yield
- Q.3 Describe in detail the cultivation of *Kharif* sorghum on the following points.
- a) Seed and sowing
  - b) Intercultivation
  - c) Manures and fertilizers
  - d) Ratoon crop management
- Q.4 Discuss in detail the cultivation of groundnut on the following aspects.
- a) Economic importance
  - b) Soil and climate
  - c) Seed and sowing
  - d) Improved varieties
- Q.5 Describe in detail the cultivation of paddy on the following points.
- a) Soil and climate
  - b) Fertilizer management
  - c) Irrigation management
  - d) Harvesting and yield
- Q.6 Explain in detail the cultivation of maize for forage purpose on the following points.
- a) Soil and climate
  - b) Seed and sowing
  - c) Nutrient management
  - d) Harvesting and yield
- Q.7 Discuss in detail the cultivation of soybean on the following aspects.
- a) Seed and sowing
  - b) Selection of Varieties
  - c) Nutrient management
  - d) Harvesting and yield

- Q.8 Explain in detail the cultivation of green gram on the following points.
- Field Preparation
  - Seed and sowing
  - Water management
  - Harvesting and yield
- Q.9 Describe in detail the cultivation of finger millet on the following points.
- Improved varieties
  - Seed and sowing
  - Weed management
  - Harvesting and yield
- Q.10 Write short notes (Any Two)
- Retting and fiber extraction in jute
  - System of Rice Intensification (SRI)
  - Malting of finger millet

#### SECTION "B"

- Q.11 Match the following pairs.

'A'

- Groundnut
- Maize
- Rice
- Black gram

'B'

- Mexico
- South East Asia
- India
- Brazil

- Q.12 Fill in the blanks.

- The protein content of milled rice is usually \_\_\_\_\_.
- Napier grass belongs to family \_\_\_\_\_.
- Botanical name of Foxtail millet is \_\_\_\_\_.
- Groundnut seed contains \_\_\_\_\_ % oil.





**B.Sc. (Hons.) Agriculture/Forestry**

**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 Differentiate between Hardware and Software.
- Q.2 Identify the type of device and write the use of following devices.
  - a) Monitor
  - b) Printer
- Q.3 Describe Smartphone Apps in Agriculture.
- Q.4 Enlist statistical functions available with spreadsheet software and explain the use of any three statistical functions.
- Q.5 Write in brief about Berlo's model of communication and describe in short 'Source'.
- Q.6 What is meant by number System? Explain Hexadecimal Number System.
- Q.7 What is RDBMS? Give its important features. State any two RDBMS software.
- Q.8 Describe Operating System and its type.
- Q.9 What are the features of word processing software?
- Q.10 State the procedure for creating graph in spreadsheet software.

Q.11 Fill in the blanks.

- 1) \_\_\_\_\_ are the special purpose output devices for producing maps, bar chart and architectural drawing.
- 2) The cell reference for a cell range A 1 to D 10 is \_\_\_\_\_.
- 3) Microsoft Excel is \_\_\_\_\_ software.
- 4) One Kilo Byte (KB) is equal to \_\_\_\_\_ bytes.

Q.12 State True or False.

- 1) Formula in excel always begins with “=”.
- 2) Wrap text option breaks a long line of text into multiple lines to fit within cell.
- 3) A primary key is a field whose values identify one and only one record in the same file.
- 4) It is possible to copy data from excel sheet in a word document.





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SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: III (New)	Term	: I	Academic Year	: 2019-20
Course No.	: AGRO 235	Title	: Rainfed Agriculture and Watershed Management		
Credits	: 2 (1+1)				
Day & Date	: Friday, 08.11.2019	Time	: 09.00 to 11.00	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 Explain various strategies to mitigate the drought in rainfed agriculture.
- Q.2 Explain various techniques of soil and water conservation in rainfed farming areas.
- Q.3 Explain various problems associated with crop production in rainfed farming.
- Q.4 Write in brief the history of rainfed agriculture.
- Q.5 What is drought? Give classification of drought and explain the classification based on sources of water availability.
- Q.6 Define water harvesting and explain in detail different methods of water harvesting.
- Q.7 What do you mean by 'Crop adaptation'? Write in short about various mechanisms in plant for conserving water under drought conditions.
- Q.8 Define watershed management. Write in short concept and state different principles of watershed management.
- Q.9 What is rainfed agriculture? Differentiate between dryland farming and rainfed farming.
- Q.10 Write short notes. (Any Two).
- a) Factors affecting watershed management
  - b) South-West Monsoon
  - c) Contingent crop planning

SECTION "B"

- Q.11 Define the following terms.

- |                     |                   |
|---------------------|-------------------|
| 1) Dry farming      | 2) Mulch          |
| 3) Cropping pattern | 4) Strip cropping |

- Q.12 Fill in the blanks.

- 1) The Dry Land Research Station in Maharashtra is located at \_\_\_\_\_.
- 2) The average annual rainfall of India is \_\_\_\_\_.
- 3) The plants which complete their life cycle within a short period are called \_\_\_\_\_.
- 4) \_\_\_\_\_ is an area from which rainfall is collected and drains through a common point.



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B.Sc. (Hons.) Agriculture

Semester	: III (New)	Term	: I	Academic Year	: 2019-20
Course No.	: BIOCHM 231	Title	: Fundamentals of Plant Biochemistry and Biotechnology		
Credits	: 3(2+1)	Time	: 09.00 to 12.00	Total Marks	: 80
Day & Date	: Monday, 04.11.2019				

- 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) Write the importance of biochemistry in agriculture.  
b) Explain in brief the chemical and physical properties of water.
- Q.2 a) Define biomolecule. Enlist them and write their general characteristics.  
b) Classify carbohydrates along with suitable examples.
- Q.3 a) Explain in brief the properties of monosaccharides.  
b) Write on structural organization of protein.
- Q.4 a) What are nucleic acids? Write their types of along with structural components.  
b) Write in detail the mechanism of enzyme action.
- Q.5 a) Give the importance of lipids.  
b) Enlist the steps involved in glycolysis.
- Q.6 a) Give outline of TCA cycle.  
b) Explain  $\beta$  oxidation of fatty acids. Write the amount of energy generated from complete oxidation of fatty acids.
- Q.7 a) Classify amino acids with suitable examples.  
b) Explain the term photosynthesis. List out the photosynthesis pigments. What is Hill's reaction?
- Q.8 Define micropropagation. Explain in detail stages and applications of micropropagation.
- Q.9 Enlist the different methods of gene transfer and describe in brief the *Agrobacterium* mediated gene transfer.
- Q.10 What is PCR? Describes the steps involved in PCR.

(P.T.O.)

## SECTION "B"

Q.11 Do as directed.

- 1) Give one example of enzyme which involved in catalysis of oxidation- reduction reactions.
- 2) Draw the structure of sucrose.
- 3) Mention Michaelis- Menten equation.
- 4) What do you understand by hydrolytic rancidity?
- 5) What is saponification?
- 6) What is the pH requirement for tissue culture media?
- 7) Give the contribution of Guha and Maheshwari?
- 8) What do you mean by Callus?

Q.12 Define the following terms.

- |                         |                             |
|-------------------------|-----------------------------|
| 1) Lipids               | 2) Allosteric enzyme        |
| 3) pH                   | 4) Nucleotides              |
| 5) Nitrate assimilation | 6) Marker Assisted Breeding |
| 7) Synthetic seed       | 8) Cybrid                   |





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**B.Sc. (Hons.) Agriculture**

<b>Semester</b> : III (New)	<b>Term</b> : I	<b>Academic Year</b> : 2019-20
<b>Course No.</b> : ENGG 232	<b>Title</b> : Farm Machinery and Power	
<b>Credits</b> : 2 (1+1)	<b>Time</b> : 09.00 to 11.00	<b>Total Marks</b> : 40
<b>Day &amp; Date</b> : Saturday, 09.11.2019		

- 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 Farm Mechanization? Give its benefits and limitations.
- Q.2 What are the important adjustments of a Mould Board Plough? What are the effects of vertical suction and horizontal suction in a Mould Board Plough? Explain with neat diagram.
- Q.3 A four cylinder 4 stroke gas engine has cylinder diameter of 25 cm, stroke-bore bore ratio is 1.8, clearance volume  $4500 \text{ cm}^3$ , engine speed 240 rev/min, mean effective pressure 700 kPa and mechanical efficiency is 75%. Calculate i) ip ii) bp iii) compression ratio iv) swept volume.
- Q.4 What are the different types of seed metering mechanism? Explain the working of fluted feed type with diagram.
- Q.5 A five tine cultivator having tine spacing 8cm, working depth of 5cm and speed is 3km/hr. Turning loss is 10%. Soil resistance is  $0.6\text{kg/cm}^3$ . Width of each furrow is 5cm. Calculate 1) Time to cover one hectare, ii) Maximum draft, iii) Required power.
- Q.6 What is harrow? Describe in detail the working of a tractor drawn off-set disc harrow.
- Q.7 The following results were obtained while calibrating a seed drill. Calculate the seed rate per hectare where i) No. of furrows=10, ii) Spacing between furrows=20cm, iii) Diameter of drive wheel=1.5 metre, iv) Speed=500 rev/min, v) seed collected=20 kg.
- Q.8 What is tillage? What are the main objectives of tillage?
- Q.9 Enlist different types of sprayers. Write advantages and disadvantages of spraying.
- Q.10 What is the purpose of engine cooling? What are the different methods of engine cooling? Write advantages and disadvantages of air cooled engine.

(P.T.O.)

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SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: III (New)	Term	: I	Academic Year	: 2019-20
Course No.	: ENTO 232	Title	: Insect Ecology and Integrated Pest Management		
Credits	: 2(1+1)				
Day & Date	: Monday, 11.11.2019	Time	: 09.00 to 11.00	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 Insect Ecology and explain effect of biotic factors on insects with suitable examples.
- Q.2 Define Pest. Enlist different methods of pest control and explain mechanical method with suitable examples.
- Q.3 Define Microbial control. Explain role of micro-organisms in pest management with example.
- Q.4 Describe scope and importance of Integrated Pest Management.
- Q.5 Describe cultural methods of pest management with suitable examples.
- Q.6 Define insecticide. Classify insecticides on the basis of mode of entry with suitable example.
- Q.7 Write short notes. (Any Two)
- a) Pest Surveillance and Forecasting
  - b) Balance of Nature
  - c) Insecticide Act, 1968
- Q.8 Define Adjuvant. Explain the necessity of insecticide formulation.
- Q.9 Enlist different application techniques of insecticide and describe any one.
- Q.10 What is pest outbreak? Describe the factors responsible for outbreak of insect pests in nature.

SECTION "B"

- Q.11 Define the following terms.

- 1)  $LC_{50}$
- 3) Adjuvants

- 2) ETL
- 4) Hyper parasitism

- Q.12 Match the following pairs.

'A'

- 1) *Bt*
- 2) Genetic control
- 3) Yellow stick trap
- 4) *Copidosoma koehleri*

'B'

- a) White fly
- b) Potato tuber moth
- c) E.F.Knippling
- d) Stomach poison





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B.Sc. (Hons.) Agriculture

Semester	: III (New)	Term	: I	Academic Year	: 2019-20
Course No.	: GPB 232	Title	: Fundamentals of Plant Breeding		
Credits	: 2 (1+1)				
Day & Date	: Wednesday, 13.11.2019	Time	: 09.00 to 11.00	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 plant breeding. Explain objectives of plant breeding.
- Q.2 Define pollination. Explain various mechanisms that promotes cross pollination.
- Q.3 Differentiate between pureline and mass selection method.
- Q.4 Write short notes. (Any Two)
- a) Clonal selection
  - b) Recurrent selection
  - c) Polyploidy
- Q.5 What is male sterility? Write its advantages and disadvantages.
- Q.6 Define hybridization. Explain different steps involved in handling hybridization programme.
- Q.7 What is incompatibility? Write its advantages and disadvantages.
- Q.8 Define mutation. Explain the characteristics and significance of mutations in crop improvement.
- Q.9 Define heterosis. Describe briefly various methods of estimating heterosis.
- Q.10 Enlist different methods of plant breeding and discuss in brief the selection method.

SECTION "B"

- Q.11 Fill in the blanks.
- 1) The term self incompatibility was coined by \_\_\_\_\_.
  - 2) The purpose of emasculation is to prevent \_\_\_\_\_ pollination.
  - 3) Single seed descent method was first suggested by \_\_\_\_\_.
  - 4) The induction of polyploidy by using colchicines is termed as \_\_\_\_\_.
- Q.12 Define the following terms.
- 1) Recalcitrant seed
  - 2) Parthenogenesis
  - 3) Inbreeding
  - 4) Synthetic variety





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**SEMESTER END EXAMINATION**

**B.Sc. (Hons.) Agriculture**

<b>Semester</b> : III (New)	<b>Term</b> : I	<b>Academic Year</b> : 2019-20
<b>Course No.</b> : HORT 232	<b>Title</b> : Production Technology for Vegetables and Spices	
<b>Credits</b> : 2(1+1)	<b>Time</b> : 09.00 to 11.00	<b>Total Marks</b> : 40
<b>Day &amp; Date</b> : Thursday, 14.11.2019		

- 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 in short cultivation of Tomato on the following points.
- a) Growth habit
  - b) Raising of seedlings
  - c) Nutrient management
  - d) Harvesting and yield
- Q.2 Explain in brief cultivation of Turmeric on the following points.
- a) Propagation and seed rate
  - b) Improved varieties
  - c) Harvesting and yield
  - d) Curing and polishing
- Q.3 Discuss in brief about the importance and scope of vegetable cultivation in India.
- Q.4 Discuss cultivation practices of Black pepper on the following aspects.
- a) Soil and climate
  - b) Propagation and planting
  - c) Varieties
  - d) Harvesting and yield
- Q.5 Explain in short cultivation of Potato on the following aspects.
- a) Soil and climate
  - b) Seed rate and seed treatment
  - c) Earthing up
  - d) Harvesting and yield
- Q.6 Explain in short cultivation of Nutmeg on the following points.
- a) Soil and climate
  - b) Varieties
  - c) Propagation and planting
  - d) Harvesting and yield
- Q.7 Discuss in brief cultivation of Onion on the following aspects.
- a) Soil and climate
  - b) Varieties for *kharif* and *rabi* season.
  - c) Harvesting and yield
  - d) Curing
- Q.8 Explain in short cultivation of Pea on the following points.
- a) Soil and climate
  - b) Manures and fertilizers
  - c) Seed rate and spacing
  - d) Harvesting and yield

**(P.T.O.)**

Q.9 Describe in brief cultivation of Cinnamon on the following points.

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

Q.10 Write short notes (Any Two).

- a) Multistoried cropping
- b) Importance and scope of spices
- c) Types of flower in brinjal

### SECTION "B"

Q.11 Fill in the blanks.

- 1) Gourd crops require training on \_\_\_\_\_ to get quality fruits.
- 2) Removal of old and drying shoots of plant in cardamom is known as \_\_\_\_\_
- 3) \_\_\_\_\_ is the recently developed cultivar of fenugreek by MPKV, Rahuri
- 4) \_\_\_\_\_ part of the clove is used as spice in commerce.

Q.12 Do as directed.

- 1) State the name of varieties of Kokam developed by Dr.BSKKV, Dapoli.
- 2) State the seed yield of fenugreek.
- 3) Expand the acronym "IISR".
- 4) Write the family of curry leaf.



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SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: III (New)	Term	: I	Academic Year	: 2019-20
Course No.	: PATH 232	Title	: Principles of Integrated Disease Management		
Credits	: 2(1+1)	Time	: 09.00 to 11.00	Total Marks	: 40
Day & Date	: Friday, 15.11.2019				

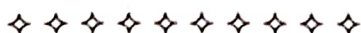
- Note :
1. Solve ANY EIGHT questions from SECTION "A".
  2. All questions from SECTION "B" are compulsory.
  3. All questions carry equal marks.
  4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1 What do you mean by Integrated Pest Management? Describe the basic principles and advantages of IPM.
- Q.2 Explain the economic importance of plant disease with suitable example.
- Q.3 What do you mean by PRA? Describe in brief about the stages of Pest Rise Analysis.
- Q.4 Define Diagnosis and Detection. Enlist the different methods of diagnosis of plant diseases. Write in short about Koch's postulates.
- Q.5 Write short note (Any Two).
- a) Plant disease forecasting
  - b) Measurement of losses due to plant diseases.
  - c) Survey and surveillance
- Q.6 Explain in short cultural methods of plant diseases management with suitable examples.
- Q.7 Describe in brief Biological methods of plant disease management.
- Q.8 What are the requirements for implementation of IPM? Discuss the IPDM model for Sugarcane crop with their diseases?
- Q.9 Explain in short (Any Two).
- a) Plant quarantine
  - b) Conventional pesticides for plant disease management
  - c) Tools of IPM
- Q.10 Enlist and explain the safety issues of the use of pesticides.

SECTION "B"

- Q.11 Define the following terms.
- 1) Infection
  - 2) Plant Disease
  - 3) Symptoms
  - 4) Pathogenesis
- Q.12 State True or False.
- 1) In India, plant quarantine rules and regulation were issued under Destructive Insect and Pest Act in 1914.
  - 2) Hot water treatment is used for management of powdery mildew disease.
  - 3) Hand lense is used for the diagnosis of plant disease.
  - 4) The term Integrated Pest Management given by Council on Environmental Quality.





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**B.Sc. (Hons.) Agriculture**

Semester	: III (New)	Term	: I	Academic Year	: 2019-20
Course No.	: STAT 231	Title	: Statistical Methods		
Credits	: 2(1+1)				
Day & Date	: Saturday, 16.11.2019	Time	: 09.00 to 11.00	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 Statistics? Give its importance and limitations.
- Q.2 State the characteristics of an ideal Measure and explain any one.
- Q.3 Define Correlation. State different types of correlation and explain any two.
- Q.4 Explain in detail Range and Variance.
- Q.5 Define Coefficient of regression and state its properties.
- Q.6 Write the steps involved in hypothesis testing.
- Q.7 Define the term sample. Explain the concept of Random sampling and Standard error.
- Q.8 State assumptions of Simple linear regression and write down its equation.
- Q.9 Define probability and find the probability of getting two heads, if coin is tossed 2 times.
- Q.10 Write short notes (Any Two).
  - a) Chi-square test
  - b) Student t-test
  - c) Analysis of Variance

## SECTION "B"

- Q.11 Define the following terms.

- 1) Type of error
- 2) Independent Events
- 3) Parameter
- 4) Mode

- Q.12 Fill in the blanks.

- 1) The father of Statistics is \_\_\_\_\_.
- 2) If  $A'$  complement of event  $A$  then  $P(A') =$  \_\_\_\_\_.
- 3) Conclusion drawn from sample is called \_\_\_\_\_.
- 4) The average relationship between dependent and independent variable is known as \_\_\_\_\_.



**B.Sc. (Hons.) Agriculture**

**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.

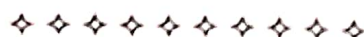
- Q.1 Define IP and discuss the objectives of IPR.
- Q.2 Explain the genesis of WTO along with its functions.
- Q.3 Discuss in detail about TRIPs.
- Q.4 Discuss the provisional and complete specification in Patent Procedure.
- Q.5 What do you mean by GI? Explain procedure for registration of GI.
- Q.6 Discuss in detail PPV and FR Act.
- Q.7 State and write in short about international treaties for protection of IPR.
- Q.8 Define Design and write about the application of design registration.
- Q.9 Define trademark. Write in detail its types.
- Q.10 Write short notes. (Any Two )
  - a) UPOV
  - b) WIPO
  - c) PCT

Q.11 Define the following terms.

1) Copyright	2) Patent
3) Invention	4) Extant variety

Q.12 Give full forms of the following.

1) GATT	2) ITPGRFA
3) TRIPS	4) CBD



MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: V (New)	Term	: I	Academic Year	: 2019-20
Course No.	: ELE ECON 354	Title	: Agri-Business Management		
Credits	: 3 (2+1)	Time	: 14.00 to 17.00	Total Marks	: 80
Day & Date	: Thursday, 14.11.2019				

- 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 methods to acquire finance.
- Q.2 Explain the legal structure of sole proprietorship in view of meaning, creation, major attractions/advantages and disadvantages.
- Q.3 Elaborate in detail the stages of product life cycle.
- Q.4 Discuss the components of business plan.
- Q.5 Draw a flow diagram of project cycle and explain the project cycle.
- Q.6 Write the functions of personnel management.
- Q.7 Give detailed the procedure to set up an agro-based industry.
- Q.8 Explain the steps in planning process.
- Q.9 Discuss in detail the marketing mix.
- Q.10 Write short note (Any Two) :
- a) Pricing policy
  - b) Controlling
  - c) Maslow's need Hierarchy

**SECTION "B"**

- Q.11 Define the following terms.
- 1) Motivation
  - 2) Leading
  - 3) Staffing
  - 4) Agri business
  - 5) Project
  - 6) Planning
  - 7) Corporation
  - 8) Ordering
- Q.12 Give full forms of the following.
- 1) APEDA
  - 2) PEST
  - 3) NAFFD
  - 4) CFTRI
  - 5) NCUI
  - 6) NCDC
  - 7) NPW
  - 8) IRR





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

**B.Sc. (Hons.) Agriculture**

<b>Semester</b> : V (New)	<b>Term</b> : I	<b>Academic Year</b> : 2019-20
<b>Course No.</b> : HORT 354	<b>Title</b> : Production Technology for Ornamental Crops, MAP and Landscaping	
<b>Credits</b> : 2 (1+1)		
<b>Day &amp; Date</b> : Wednesday, 13.11.2019	<b>Time</b> : 14.00 to 16.00	<b>Total Marks</b> : 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 Write about cultivation of chrysanthemum in respect of the following points.
- a) Soil and climate
  - b) Varieties
  - c) Pinching and disbudding
  - d) Harvesting and yield
- Q.2 Write about cultivation of jasmine in respect of the following points.
- a) Soil and climate
  - b) Propagation and spacing
  - c) Pruning
  - d) Harvesting and yield
- Q.3 Write in detail on commercial cultivation of gladiolus on the following points.
- a) Soil and climate
  - b) Propagation and planting
  - c) Manures and fertilizers
  - d) Harvesting and grading
- Q.4 Write in brief on protected cultivation of rose on the following points.
- a) Climate
  - b) Pinching
  - c) Time of pruning
  - d) Harvesting and yield
- Q.5 Comment on importance and scope of Medicinal and Aromatic plants in India.
- Q.6 Write cultivation for Vetiver on the following aspects.
- a) Climate and soil
  - b) Propagation
  - c) Manures and fertilizers
  - d) Harvesting
- Q.7 Explain about cultivation of Periwinkle considering the following points.
- a) Climate and Soil
  - b) Land preparation
  - c) Planting
  - d) Harvesting
- Q.8 Write in brief cultivation of Citronella considering following points.
- a) Propagation
  - b) Planting
  - c) Aftercares
  - d) Harvesting and yield

(P.T.O.)

Q.9 Write uses of the following.

a) Isabgol

b) Lemon grass

c) Vetiver

d) Geranium

Q.10 Define landscaping. Describe in brief about the principles of landscaping.

### SECTION "B"

Q.11 Write plant part / parts used for propagation of the following.

1) Gladiolus

2) Jasmine

3) Palmarosa

4) Isabgol

Q.12 Match the following pairs.

**'A'**

1) *Polianthes tuberosa*

2) *Tagetes erecta*

3) *Catharanthus roseus*

4) *Cymbopogon citrates*

**'B'**

a) Lemon grass

b) Periwinkle

c) Tuberose

d) African Marigold



MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: V (New)	Term	: I	Academic Year	: 2019-20
Course No.	: GPB 355	Title	: Crop Improvement –I (Kharif Crops)		
Credits	: 2 (1+1)				
Day & Date	: Monday, 11.11.2019	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 pollination. Describe various types of mode of pollination.
- Q.2 Define Pedigree method of breeding. Explain the procedure of Pedigree method.
- Q.3 What do you mean by transgenic plant? Discuss the applications of transgenic plants in crop improvement.
- Q.4 Explain the various mechanisms of insect resistance in crop plants with the help of suitable example.
- Q.5 Differentiate between
- a) Qualitative traits and Quantitative traits.
  - b) Mass selection and Pure line selection
- Q.6 Define ideotype breeding. Describe the various steps in ideotype breeding.
- Q.7 Write short notes :
- a) Somatic hybridization
  - b) Gene for gene hypothesis
- Q.8 Describe the procedure for certified seed production in hybrid maize.
- Q.9 Define drought resistance. Explain various mechanisms that contribute to drought resistance.
- Q.10 Write the procedure of certified seed production of rice variety.

SECTION "B"

- Q.11 Define the following terms.
- 1) Germplasm
  - 2) Modifying gene
  - 3) Genetic erosion
  - 4) Hybrid
- Q.12 Do as directed.
- 1) *Nicotiana tabacum* cultivated species derived from \_\_\_\_\_ and \_\_\_\_\_ species.
  - 2) Give the botanical name of the following crops.
    - a) Finger millet
    - b) Pomegranate
  - 3) Name the systems used for hybrid seed production of rice.
  - 4) Complete the following table.

Sr.No.	Crop	Origin
1)	Castor	
2)	Groundnut	





MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: V (New)	Term	: 1	Academic Year	: 2019-20
Course No.	: ENTO 354	Title	: Pests of Crops and Stored Grain and Their Management-I		
Credits	: 2 (1+1)	Time	: 14.00 to 16.00	Total Marks	: 40
Day & Date	: Saturday, 09.11.2019				

- 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 Give the scientific name, typical damage symptoms and describe the management practices for brown plant hopper and yellow stem borer of rice.
- Q.2 Enlist the major pests of pigeonpea pod borer complex with scientific names. Mention the nature of damage and management practices for pod fly.
- Q.3 Mention the major pests associated with bollworm complex of cotton. Describe the nature of damage and management practices for cotton pink bollworm.
- Q.4 Give the scientific name, host, typical damage symptoms and management practices for sugarcane top shoot borer.
- Q.5 Write short notes. (Any Two)
- a) Sorghum shoot fly                      b) Maize stem borer                      c) Bajra blister beetle
- Q.6 Enlist the management practices for rodents and describe any two measures.
- Q.7 Write in brief about the scientific name, host and nature of damage (Any Two) :
- a) Pulse beetle                              b) Rice moth                              c) Khapara beetle
- Q.8 Enlist the preventive and curative measures for the management of stored grain pests. Describe any one preventive and curative measure.
- Q.9 Give a brief account about site of oviposition, nature of damage and management practices for groundnut white grub and Tobacco leaf eating caterpillar.
- Q.10 Write in brief about (Any Two) :
- a) Safflower aphid                              b) Linseed gall fly                              c) Soybean girdle beetle

SECTION "B"

- Q.11 Give the damaging stage/stages of the following pests
- 1) Chickpea cutworm                              2) Wheat termites  
3) Groundnut leaf miner                              4) Sugarcane pyrilla
- Q.12 Do as directed.
- 1) Name the vector of soybean mosaic disease.  
2) The silver shoots in paddy are caused by \_\_\_\_\_.  
3) Name the vector of pigeonpea sterility mosaic.  
4) Mention the commercially available broad spectrum molluscicide.



MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture/ Forestry

Semester	: V (New)	Term	: I	Academic Year	: 2019-20
Course No.	: EXTN 355	Title	: Entrepreneurship Development and Business Communication		
Credits	: 2 (1+1)				
Day & Date	: Thursday, 07.11.2019	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 Explain the characteristics of an entrepreneur.
- Q.2 Narrate in brief the types of advertisements.
- Q.3 What do you mean by SWOT analysis?
- Q.4 Define Advertising. Describe the elements of advertisement.
- Q.5 What is entrepreneurship? Explain the process of entrepreneurship development.
- Q.6 State the objectives of market survey. Discuss the aspects of survey.
- Q.7 Describe the phases of entrepreneurial venture.
- Q.8 Enlist the steps in setting small enterprise.
- Q.9 Define business communication. Explain most important Business Communication Skills.
- Q.10 Explain the importance of the entrepreneurship development programme.

**SECTION "B"**

- Q.11 State True or False.
- 1) The book entitled "Dimensions of Agricultural Extension" is written by A.K.Singh, Lakhan Singh and R.Roy Burman.
  - 2) The advertising benefits the manufacturer, middleman, sales man and society.
  - 3) Communication is the exchange of any ideas among the people.
  - 4) Product, Price, Place and Promotion are the elements of marketing mix.
- Q.12 Fill in the blanks.
- 1) KVIC means \_\_\_\_\_.
  - 2) \_\_\_\_\_ means a process of stimulating people to action to accomplish desired goals.
  - 3) \_\_\_\_\_ is symbolic representation of a company.
  - 4) \_\_\_\_\_ is the ability to bring something in a better way for the society.





MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: V(New)	Term	: I	Academic Year	: 2019-20
Course No.	: ECON 353	Title	: Agricultural Marketing, Trade and		
Credits	: 3 (2+1)		Prices		
Day & Date	: Monday, 04.11.2019	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) State the importance of agricultural marketing in economy.  
b) Give the classification of market based on volume of transaction.
- Q.2 a) What do you mean by marketing mix? Explain it in brief.  
b) Define demand. State the factors affecting demand for farm products.
- Q.3 a) Define producer's surplus. Explain the factors affecting marketable surplus.  
b) Explain the stages of Product Life Cycle.
- Q.4 a) What are the promotion methods used in marketing? Explain in brief.  
b) Explain different pricing methods in determining prices of product.
- Q.5 a) Write the Kohls and Uhl classification of marketing functions.  
b) Explain the buying and selling functions of marketing.
- Q.6 a) Define market integration. Explain the types of market integration.  
b) Define marketing channel. State factors affecting length of marketing channel.
- Q.7 a) Explain the approaches to assess the marketing efficiency.  
b) Enlist and explain the factors affecting marketing cost.
- Q.8 a) State the origin, objectives and functions of NAFED.  
b) State the origin, objectives and functions of FCI.
- Q.9 a) State the types of risk in agricultural marketing and ways to minimize them.  
b) What do you mean by international trade? Explain the basis of international trade.
- Q.10 Write short notes (Any Two):
- a) WTO
  - b) CACP
  - c) TRIPS



## SECTION "B"

Q.11 Fill in the blanks.

- 1) In short period market, the prices of commodities are governed mainly by the extent of \_\_\_\_\_, for rather than the supply of commodities.
- 2) Quality of agricultural commodities is ensured by \_\_\_\_\_ label.
- 3) The word market comes from the Latin word \_\_\_\_\_.
- 4) Market \_\_\_\_\_ determines the market conduct and performance.
- 5) Storage function of market creates \_\_\_\_\_ utility.
- 6) The first Cooperative Marketing Societies Act was passed in the year \_\_\_\_\_.
- 7) Hamals, weighmen, graders etc. are classified as \_\_\_\_\_ middlemen.
- 8) Difference between the prices prevailing at successive stages of marketing at a given point of time is called \_\_\_\_\_ margin.

Q.12 Do as directed.

- 1) Study of activities related to supply of farm inputs to the farmers is a part of subject matter of agricultural marketing. (True or False)
- 2) The supply of curve of agricultural commodities is positively sloped. (True or False)
- 3) Marketable surplus may be more, equal or less to the marketed surplus. (True or False)
- 4) DMI (Give the full form)
- 5) CWC (Give the full form)
- 6) AOA (Give the full form)
- 7) GATT (Give the full form)
- 8) State the two names of public sector marketing institutions.



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

Semester	: V(New)	Term	: I	Academic Year	: 2019-20
Course No.	: AHDS 353	Title	: Technology of Milk and Milk Products		
Credits	: 2 (1+1)	Time	: 14.00 to 16.00	Total Marks	: 40
Day & Date	: Tuesday, 05.11.2019				

- 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 physico-chemical properties of milk. Describe specific gravity and boiling point.
- Q.2 Give classification of milk constituents and explain lactose.
- Q.3 Enlist various quality management systems for milk in India and comments on FSSAI.
- Q.4 Classify the Indigeneous dairy products with suitable example and write the procedure for preparation of Dahi.
- Q.5 Enlist various modern packaging techniques used in dairy industry and describe in short the aseptic packaging technology.
- Q.6 Explain the following factors affecting yield and composition of milk.
- |                    |                              |
|--------------------|------------------------------|
| a) Breed of animal | b) First and last drawn milk |
| c) Age of animal   | d) Feed and fodder           |
- Q.7 Write the present scenario of Indian dairy industry.
- Q.8 Enlist the methods of pasteurization. Describe water jacketed vat type batch pasteurizer with labeled diagram.
- Q.9 Write the average composition of whey and give flow chart for utilization of whey in preparation whey-based fruit beverage.
- Q.10 Write short notes (Any Two) :
- a) Advantages and disadvantages of homogenization of milk
  - b) Nutritional importance of milk fat
  - c) Physical method of mil preservation

(P.T.O.)

## SECTION "B"

Q.11 Do as directed.

- 1) Give full form of EIC.
- 2) Give any one name of enzyme present in milk.
- 3) At what temperature raw milk should be cooled until processed?
- 4) Which international commission protects the health of consumers and ensures practices in food trade?

Q.12 Fill in the blanks.

- 1) \_\_\_\_\_ is the clarified butter fat.
- 2) Toned milk contains \_\_\_\_\_ % SNF.
- 3) \_\_\_\_\_ can be defined as a tool that protects and contains our goods with the aim of minimizing the environmental impact on consumption.
- 4) Adjustment of fat and SNF in milk is called \_\_\_\_\_.



(Note: Read Milk in Que.10 [c])



MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: V (New)	Term	: I	Academic Year	: 2019-20
Course No.	: SSAC 353	Title	: Manures, Fertilizers and Soil Fertility Management		
Credits	: 3 (2+1)	Time	: 14.00 to 17.00	Total Marks	: 80
Day & Date	: Friday, 08.11.2019				

- 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) State Arnon's Criteria of essentiality of nutrients. Classify the essential nutrients with the forms in which they are absorbed by plants.  
b) What is organic recycling? Give the chemical composition of undecomposed organic matter.
- Q.2 a) Define and classify bulky and concentrated organic manures with one example each.  
b) Define composting. Explain in detail Bangalore method of composting.
- Q.3 a) Define green manuring. Explain decomposition of green manuring in soil.  
b) Write down in detail about sewage and sludge along with their composition.
- Q.4 a) Define complex fertilizers. Write down the characteristics of complex fertilizer.  
b) Define fertilizers. Classify nitrogenous fertilizers with suitable examples.
- Q.5 a) What is Integrated Nutrient Management? Enlist advantages of INM.  
b) Explain the mechanism of transport of ions from soil to roots.
- Q.6 a) Describe in detail nitrogen fixation in soil.  
b) Write in brief the reactions of micro-nutrients in soil.
- Q.7 a) What is meant by soil fertility evaluation? Enlist the methods of Soil fertility evaluation.  
b) Give sources of phosphorus to soil and describe phosphorus fixation in soil.
- Q.8 a) Enlist different approaches for plant analysis and describe in detail DRIS.  
b) Discuss about losses during handling and storage of fertilizers.
- Q.9 a) Define Soil Fertility. What are the advantages of soil testing and state various approaches for fertilizer recommendations on the basis of soil test.  
b) Define nutrient use efficiency and explain factors influencing it.
- Q.10 Write short notes (Any Two) :
- a) C:N ratio
  - b) Potassium fixation in soil
  - c) Vermicompost

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE  
SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: V(New)	Term	: I	Academic Year	: 2019-20
Course No.	: PATH 354	Title	: Diseases of Field and Horticultural Crops and Their Management - I		
Credits	: 3 (2+1)				
Day & Date	: Wednesday, 06.11.2019	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 Write symptoms and management of the following diseases. (Any Two) :
- a) Foot rot of papaya    b) Panama wilt of banana    c) Phomopsis blight of brinjal
- Q.2 Describe symptoms of the following diseases.
- a) Yellow vein mosaic of okra    b) Bunchy top of banana  
c) Leaf curl of papaya    d) Mosaic of tomato
- Q.3 Enlist causal organisms, symptoms, survival and spread and management of bacterial blight of pomegranate.
- Q.4 Enlist casual organisms, major symptoms, perpetuation and management of the following diseases. (Any Two)
- a) Anthracnose of beans    b) Rust of coffee    c) Early blight of tomato
- Q.5 Enlist different smuts of sorghum with their causal organisms. Write about grain mould of sorghum in terms of causal fungi, symptoms and management.
- Q.6 Explain in detail symptoms and transmission of the following disease.
- a) Tobacco mosaic    b) Pigeonpea sterility mosaic  
c) Rice Tungro disease    d) Yellow mosaic of black gram
- Q.7 Describe symptoms of the following diseases.
- a) Downy mildew of maize    b) Downy mildew of bajra  
c) Late leaf spot of groundnut    d) Blast of paddy
- Q.8 Comment on causal organism, symptoms and etiology of the following diseases.
- a) Ergot of bajra    b) Anthracnose of sorghum
- Q.9 Write short notes. (Any Two)
- a) Pigeonpea wilt    b) Coconut bud rot  
c) Guava wilt
- Q.10 Explain in detail about black rot of cabbage.



## SECTION "B"

Q.11 State True or False.

- 1) Brown spot disease of paddy is not soil borne.
- 2) Dwarf Cavendish bananas are generally resistant to panama wilt.
- 3) Summer sown black gram is highly susceptible to yellow mosaic disease.
- 4) Taichung Native 1 variety of paddy is highly susceptible to bacterial blight.
- 5) *Tolyposporium eherenbergii* is air borne pathogen.
- 6) Secondary spread of false smut of paddy is accomplished through chlamydospores.
- 7) *Pycnial* and *aecial* stages of coffee rust are not known.
- 8) *Exobasidium vexans* causes blister blight in tea plantations.

Q.12 Do as directed.

- 1) Name the sexual spore which initiates primary infection in damping off of tomato.
- 2) Akiochi symptom of paddy is a result of deficiency of \_\_\_\_\_ nutrient in the soil. (Fill in the blank)
- 3) State causal organism of *Phytophthora* blight of castor.
- 4) *Fusarium oxysporum f.sp.cubense* is soil borne and mainly survive in the form of \_\_\_\_\_. (Fill in the blank).
- 5) Name one phytotoxin produced by the fungus causing brown spot of paddy.
- 6) Paddy bacterial blight resistant gene *Xa21* is isolated from \_\_\_\_\_. (Fill in the blank)
- 7) Enlist name of the virus causing mosaic disease in soybean.
- 8) Bunchy top of banana is transmitted by \_\_\_\_\_. (Fill in the blank)

