

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : III (New)	Term : I	Academic Year : 2017-18
Course No. : AGRO 235	Title : Field Crops – I (<i>Kharif</i> Crops)	
Credits : 3(2+1)	Time : 9.00 to 12.00	Total Marks : 80
Day & Date : Monday, 13.11.2017		

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



SECTION "A"

- Q.1 Write in brief about cultivation of irrigated hybrid cotton on the following points.
- a) Seed and sowing
 - b) Weed management
 - c) Nutrient management
 - d) Plant protection
- Q.2 Write in brief about cultivation of black gram (udid) on the following points.
- a) Soil and climate
 - b) Seed and Sowing
 - c) Manures and fertilizers
 - d) Improved varieties and yield
- Q.3 Describe the cultivation of lowland rice on the following points.
- a) Wet nursery preparation
 - b) Field preparation for transplanting
 - c) Nutrient management
 - d) Weed management
- Q.4 Discuss in detail cultivation of *grain* sorghum on the following points.
- a) Seedbed preparation
 - b) Seed and Sowing
 - c) Interculturing
 - d) Harvesting, threshing and yield
- Q.5 Explain the cultivation of pigeon pea with reference to the following points.
- a) Soil and seedbed preparation
 - b) Seed and sowing
 - c) Nutrient management
 - d) Plant protection
- Q.6 Write in detail cultivation of groundnut on the following points.
- a) Seed and sowing
 - b) Fertilizer and water management
 - c) Intercultural operation
 - d) Signs of maturity and harvesting
- Q.7 Prepare leaf-let on cultivation of the fodder maize.
- Q.8 Elaborate the management practices in respect of seed rate, cutting management and yield of the following crop.
- a) Para grass
 - b) Pearl millet for fodder
 - c) Napier grass
 - d) Cowpea for fodder
- Q.9 Discuss on seed and sowing and fertilizer management of soybean and castor crop.

(P.T.O.)

Q.10 Write short notes (Any Four).

- Retting in jute
- Describe in the brief causes for low production of fodder in India
- Benefit of minor millets
- Seed and sowing of sesame
- Economic importance of green gram

SECTION "B"

Q.11 Fill in the blanks.

- Cotton belongs to _____ family.
- Maan and Sina are the varieties of _____ crop.
- In pulse crops _____ biofertilizer is used for N fixation.
- The botanical name of dhaincha is _____.
- Niger contains _____ % oil.
- _____ crop is called king of forage crops.
- Dhanshakti is high iron contain variety of _____.
- Seed rate for berseem grass crop is _____ kg. per ha.

Q.12 Match the following pairs.

"A"

- Tassel
- Dapog*
- Bhagar
- Mataki
- Pedaliaceae
- Hydrocyanic acid
- Wonder crop
- Fiber

"B"

- Soybean
- Sunhemp
- Rice
- Maize
- Sorghum
- Sesame
- Moth bean
- Barnyard



MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: III (New)	Term	: I	Academic Year	: 2017-18
Course No.	: BOT 233	Title	: Principles of Plant Breeding		
Credits	: 3(2+1)	Time	: 9.00 to 12.00	Total Marks	: 80
Day & Date	: Wednesday, 15.11.2017				

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

SECTION "A"

- Q.1 What is Heterosis? Enlist the theories and explain dominance hypothesis of heterosis with objections.
- Q.2 Define male sterility. Enlist the different types of male sterility found in crop plants. Explain Genetic male sterility along with its merits and demerits.
- Q.3 Define plant breeding. Give its aim and explain objectives of plant breeding.
- Q.4 Define mutation. Explain types of mutagens with example and give applications of mutation breeding in crop improvement.
- Q.5 Define pollination. Give its types and explain various mechanisms that promote cross pollination.
- Q.6 Define distant hybridization. Enlist its types. Describe applications of distant hybridization in crop improvement with suitable examples.
- Q.7 Define recurrent selection. Explain briefly procedure of reciprocal recurrent selection and the merits and demerits of recurrent selection.
- Q.8 Enlist different breeding methods of self pollinated crops. Differentiate between pure line selection and mass selection.
- Q.9 What is synthetic variety? Give the procedure of development of synthetic variety and its advantages.
- Q.10 Write short notes (Any Two).
- a) Clonal selection
 - b) Evolutionary history of hexaploid wheat
 - c) Parthenogenesis

(P.T.O.)

SECTION "B".

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

- | | |
|-------------------|---------------------|
| 1) Dr. C.T. Patel | 2) Thomas Fairchild |
| 3) Jensen N.F. | 4) N.G.P.Rao |

b) Fill in the blanks.

- 1) _____ refers to the development of embryo from synergids or antipodal cells without fertilization.
- 2) NBPGR stands for _____.
- 3) Mixture of several similar pure lines having different genes for disease resistance is called _____.
- 4) The process of bringing a wild species under human management is known as _____.

Q.12 Define the following terms.

- | | |
|-------------------|--------------------------|
| 1) Dioecious | 2) Hybrid vigour |
| 3) Introduction | 4) Hermaphrodite |
| 5) Floral biology | 6) Inbreeding depression |
| 7) Quarantine | 8) Three way cross |



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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : III (New)	Term : I	Academic Year : 2017-18
Course No. : BOT 234	Title : Crop Physiology	
Credits : 3(2+1)	Time : 9.00 to 12.00	Total Marks : 80
Day & Date : Friday, 17.11.2017		

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

SECTION "A"

- Q.1 Define plant growth regulator. Enlist the various types of plant growth regulators. Give the physiological role of Gibberellins and Auxin.
- Q.2 Define the term crop physiology. Give the importance and scope of crop physiology in relation to crop productivity.
- Q.3 Define transpiration. Give its significance in plant and explain the mechanism of opening and closing of stomata.
- Q.4 What is photosynthesis? Explain in detail various factors affecting photosynthesis.
- Q.5 What is nutriophysiology? Write the general functions of mineral nutrients. Give deficiency symptoms of Nitrogen and Boron.
- Q.6 Define growth. What are the growth characteristics? Give the formulae for AGR, LAI, HI and NAR.
- Q.7 Answer the following questions.
- a) Explain in short climacteric and non-climacteric fruits.
 - b) Give the classification of senescence along with its examples.
 - c) Write in short about components of water potential.
 - d) What is translocation of solute and enlist pathways of translocation of solute.
- Q.8 Define respiration. Describe the process of Glycolysis and enlist various factors affecting rate of respiration.
- Q.9 What is fruit ripening? Describe hormonal regulation of the fruit ripening.
- Q.10 Distinguish between (Any Two).
- a) Light reaction of photosynthesis and dark reaction of photosynthesis
 - b) Monocarpic species and polycarpic species
 - c) Short day plants and long day plants
 - d) Active absorption of water and passive absorption of water

(P.T.O.)

SECTION "B"

Q.11 a) Define the following terms.

- | | |
|-------------------------|---------------------|
| 1) Water use efficiency | 2) Photorespiration |
| 3) Imbibitions | 4) Vernalization |

b) Give full forms of the following.

- | | |
|--------|--------|
| 1) CAM | 2) CCC |
| 3) RGR | 4) PWP |

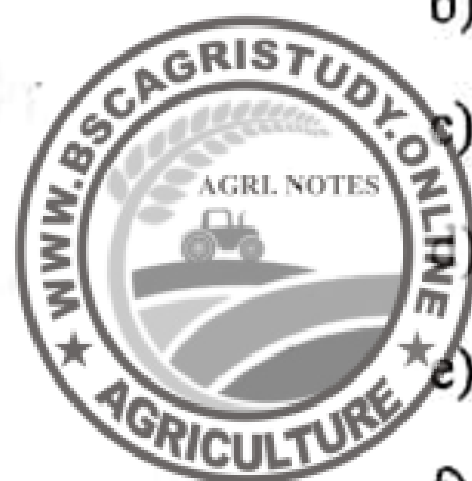
Q.12 Match the following pairs.

"A"

- 1) C₄ plant
- 2) Hydathodes
- 3) IAA
- 4) Granna
- 5) Photosynthesis
- 6) Glycolysis
- 7) Senescence
- 8) Phloem

"B"

- a) Programmed cell death
- b) Pyruvic acid
- c) Translocation of food
- d) Maize
- e) Natural Auxin
- f) Chloroplast
- g) Light reaction
- h) Guttation



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

B.Sc. (Agri.)

Semester : III (New)	Term : I	Academic Year : 2017-18
Course No. : ECON 232	Title : Production Economics and Farm Management	
Credits : 2(1+1)		
Day & Date : Tuesday, 21.11.2017	Time : 9.00 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 do you mean by production? Explain diagrammatically the law of increasing return with an example.
- Q.2 Define linear programming. Enlist and explain the assumptions of linear programming.
- Q.3 What is farm budgeting? Explain the types of farm budgeting.
- Q.4 What is farm planning? State and explain different steps in farm planning.
- Q.5 Enlist different basic concepts of production economics and discuss any four of them.
- Q.6 Give the meaning of risk and uncertainty. Explain different sources of risk.
- Q.7 Enlist the different types of farming and discuss any one of them.
- Q.8 Define farm management. Describe the scope of farm management.
- Q.9 Enlist different types of enterprise relationships and explain any two of them.
- Q.10 Write short notes (Any Two).
 - a) Objectives of production economics
 - b) Characteristics of good farm plan
 - c) Expansion path

SECTION "B"

- Q.11 Fill in the blanks.
 - 1) When MP is zero TP is at its _____.
 - 2) In classical production function, at inflection point, elasticity of production is _____.
 - 3) When all the possible combinations of two products that can be produced with given amounts of inputs it is termed as _____.
 - 4) In factor-factor relationship isoquant is _____ to the origin.
- Q.12 State True or False.
 - 1) Production function is continuous as well as discontinuous.
 - 2) Production economics is micro approach of study.
 - 3) The present value of a given income in a future year is derived by using the discounting technique.
 - 4) Crop yield index is a physical efficiency measure of measuring farm efficiency.

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SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : III (New)	Term : I	Academic Year : 2017-18
Course No. : ENGG 232	Title : Introduction to Computer and Applications	
Credits : 2(1+1)	Time : 9.00 to 11.00	Total Marks : 40
Day & Date : Saturday, 18.11.2017		

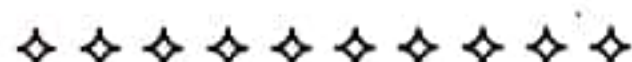
- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1 Describe Operating system and its types.
- Q.2 Explain internal DOS command with syntax.
- Q.3 Explain different mouse operations.
- Q.4 Explain block diagram of computer and types of computers.
- Q.5 Explain windows desktop and its elements.
- Q.6 Explain Copy-Paste and Cut-Paste features of word processing document.
- Q.7 Explain the functions available in electronic spread sheet software.
- Q.8 Explain step Cell range, Cell reference concept in electronic spreadsheet software.
- Q.9 Describe features of presentation software.
- Q.10 Explain web browsing, electronic mail.

SECTION "B"

- Q.11 Fill in the blanks.
 - 1) _____ DOS command is used for copying files, sub directory and directory.
 - 2) Microsoft Excel is _____ software.
 - 3) _____ is store run time data, application program and operating system.
 - 4) A small picture on the screen that represent objects, documents, applications and devices is called _____.
- Q.12 State True or False.
 - 1) File name including extension in DOS is 11 characters long.
 - 2) ROM is used to store operating system, application and user data during computer is working.
 - 3) Secondary memory is used for taking backup of important data.
 - 4) Dialogue box is used by DOS operating system to communicate with user.

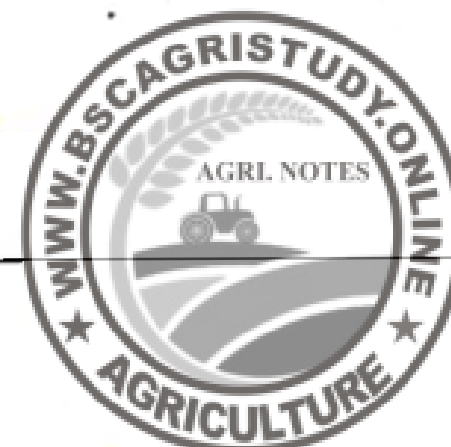


MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : III (New)	Term : I	Academic Year : 2017-18
Course No. : ENTO 231	Title : Insect Morphology and Systematics	
Credits : 3(2+1)	Time : 9.00 to 12.00	Total Marks : 80
Day & Date : Monday, 20.11.2017		

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



SECTION "A"

- Q.1 Define metamorphosis and describe its types with examples.
- Q.2 Describe digestive system of cockroach with labeled diagram.
- Q.3 Describe mouth parts of honey bee with labeled diagram.
- Q.4 Explain modification in insect antenna with suitable examples.
- Q.5 Describe wing modifications in insects with examples.
- Q.6 Describe structure of insect integument with labeled figure.
- Q.7 Explain male reproductive system of insect with labeled diagram.
- Q.8 Explain central nervous system of insect with labeled diagram.
- Q.9 Explain circulatory system of insect.
- Q.10 Write short notes (Any Two).
 - a) Structure of typical insect leg
 - b) Sense organs
 - c) Malpighian tubules
 - d) Order Lepidoptera

SECTION "B"

- Q.11 Define the following terms.

1) Sclerite	2) Ecdysis	3) Ovipositor	4) Spiracle
5) Systematics	6) Taxonomy	7) Entomology	8) Morphology
- Q.12 Do as directed.
 - 1) State the head position in red cotton bug.
 - 2) State the order of mustard sawfly.
 - 3) Name of minute end tube of tracheal respiratory system.
 - 4) State the phylum of insect.
 - 5) _____ is the endoskeleton present in insect head (Fill in the blank).
 - 6) Hamulate/frenate type of wing coupling apparatus is observed in honey bees. (Choose the correct word)
 - 7) Name the location of epicranial suture.
 - 8) Apodus larvae possess abdominal legs (State true or false).



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B.Sc. (Agri.)

Semester : III (New)	Term : I	Academic Year : 2017-18
Course No. : HORT 232	Title : Production Technology of Vegetables and Flowers	
Credits : 2(1-1)		
Day & Date : Thursday, 16.11.2017	Time : 9.00 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 vegetable and write in brief about importance and scope for vegetable growing in India.
- Q.2 Describe in brief about cultivation of chrysanthemum on following points.
- a) Propagation methods
 - b) Planting time and spacing
 - c) Varieties
 - d) Harvesting and yield
- Q.3 Enlist different types of vegetable farming and describe market gardening.
- Q.4 Describe cultivation of okra on the following points.
- a) Soil and climate
 - b) Improved varieties
 - c) Seed rate and spacing
 - d) Harvesting and yield per hectare
- Q.5 Discuss cultivation of rose on the following point.
- a) Modern garden roses
 - b) Propagation methods
 - c) Varieties
 - d) Pruning
- Q.6 Give information on cucumber cultivation with respect to following points.
- a) Improved varieties
 - b) Layout and planting
 - c) Manures and fertilizers
 - d) Harvesting and yield per hectare
- Q.7 Write short notes (Any Two).
- a) Disbudding
 - b) Pinching
 - c) De shooting
- Q.8 Describe cultivation of tomato on the following points.
- a) Planting season, spacing and seed rate
 - b) Hybrid varieties
 - c) Harvesting stages
 - d) Yield per hectare
- Q.9 Discuss the cultivation of tuberose on the following points.
- a) Soil and climate
 - b) Time of planting and propagation
 - c) Varieties
 - d) Harvesting and yield

(P.T.O.)

Q.10 Give the information in tabular form.

Sr.No.	Name of the crop	Spacing	Seed rate/ha	Varieties	Yield/ha
a)	Chilli				
b)	Marigold				

SECTION "B"

Q.11 Match the following pairs.

"A"

"B"

- | | |
|-----------------|-------------------|
| 1) Gladiolus | a) Rooted Suckers |
| 2) Sweet potato | b) Seed |
| 3) Jasmine | c) Corm |
| 4) Ridge gourd | d) Cutting |

Q.12 Fill in the blanks.

- 1) Indian Institute of Vegetable Research is located at _____.
- 2) _____ garden is laid out in a symmetrical or a geometrical pattern.
- 3) Amaranth leaves are rich in vitamin _____.
- 4) _____ is a special underground storage organ produced by monocotyledonous plants.



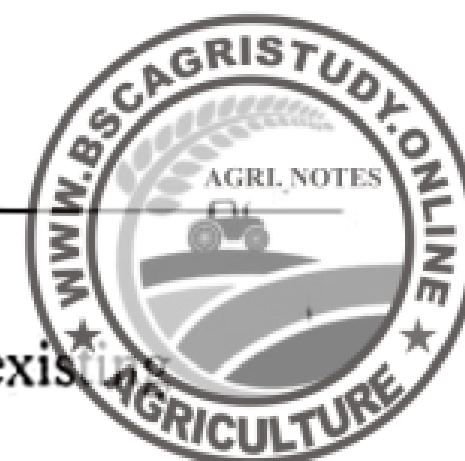
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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: III (New)	Term	: I	Academic Year	: 2017-18
Course No.	: PATH 232	Title	: Principles of Plant Pathology		
Credits	: 2(1+1)	Time	: 9.00 to 11.00	Total Marks	: 40
Day & Date	: Tuesday, 14.11.2017				

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



SECTION "A"

- Q.1 Classify the defense mechanisms in plants and describe in detail the pre-existing biochemical defense mechanisms with suitable examples.
- Q.2 Define dissemination, classify various modes of plant pathogens dissemination and narrate continuous dissemination with suitable examples.
- Q.3 Write short notes (Any Two).
- a) Plant disease forecasting
 - b) Biological control
 - c) Physical methods of disease control
 - d) Advantages of IDM
- Q.4 Enlist general principles of plant disease management. Explain in short exclusion with suitable examples.
- Q.5 Define perpetuation, enlist and narrate various modes of perpetuation of plant pathogenic fungi with suitable examples.
- Q.6 Define pathogenesis. Describe in brief the role of enzymes and growth regulators in pathogenesis.
- Q.7 Define infection and describe various mechanisms of infection by plant pathogens with suitable examples.
- Q.8 Differentiate between (Any Two).
- a) Alternate host and Collateral host
 - b) Phytotoxins and Pathotoxins
 - c) Polycyclic and Monocyclic disease
 - d) Appressoria and Haustoria
- Q.9 Define biotechnology and describe in brief various biotechnological approaches employed to manage plant diseases.
- Q.10 Define fungicide. Enlist various methods of application of fungicides and describe foliar application method.

SECTION "B"

- Q.11 Do as directed.
- 1) Most commercially exploited fungal biocontrol agent is _____.(Fill up the blank)
 - 2) An organism surviving on dead organic matter is termed as biotroph.(State true/false)
 - 3) Bacteria are Passive /Active invaders (Choose correct word)
 - 4) What do you mean by epidemic disease?
- Q.12 Define the following terms.
- 1) Inoculum
 - 2) Resistance
 - 3) Fungistat
 - 4) Antibiotic

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