

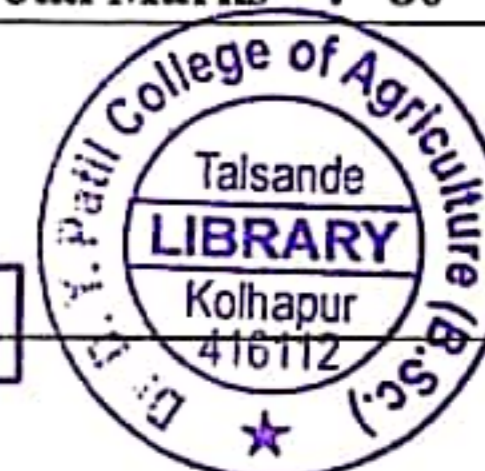
**MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE**  
**SEMESTER END EXAMINATION**

**B.Sc. (Agri.)**

<b>Semester</b> : III (Old)	<b>Term</b> : I	<b>Academic Year</b> : 2018-19
<b>Course No.</b> : AGRO 235	<b>Title</b> : Field Crops – I ( <i>Kharif</i> Crops)	
<b>Credits</b> : 3(2+1)		
<b>Day &amp; Date</b> : Monday, 12.11.2018	<b>Time</b> : 9.00 to 12.00	<b>Total Marks</b> : 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.

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**SECTION "A"**

- Q.1 Describe in detail regarding cultivation of rice on the following points.
- a) Economics importance
  - b) Cultivation methods
  - c) Fertilizer management
  - d) Harvesting and yield
- Q.2 Discuss in detail about cultivation of maize on the following aspects.
- a) Seed and sowing
  - b) Weed Management
  - c) Hybrids and varieties
  - d) Harvesting and yield
- Q.3 Prepare a leaflet on pigeon pea (Tur) in respect of the following points.
- a) Seed and sowing
  - b) Varieties
  - c) Plant protection
  - d) Harvesting and yield
- Q.4 Elaborate the production technology for cotton crop with respect to the following aspects.
- a) Climate and soil
  - b) Seed and sowing
  - c) Irrigation management
  - d) Picking and yield
- Q.5 Give the detail information of sorghum crop with respect to the following points.
- a) Seed and sowing
  - b) Fertilizer management
  - c) Plant protection
  - d) Harvesting and yield
- Q.6 Explain in detail the cultivation of groundnut on the following points.
- a) Climate and soil
  - b) Seed and sowing
  - c) Intercultivation
  - d) Plant protection
- Q.7 Describe in detail about seed, sowing and harvesting of the following crops (Any Two).
- a) Hy. Napier grass
  - b) Stylo grass
  - c) Fodder bajra
  - d) Fodder cowpea
- Q.8 Discuss in detail about cultivation of sesamum with reference to the following aspects.
- a) Climate and soil
  - b) Seed and sowing
  - c) Varieties
  - d) Weed management

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

Q.9 Write short notes. (Any Two).

- a) Nutritive value of minor millets
- b) Retting in jute
- c) Types of green manuring

Q.10 a) Write the importance of pulse crops in Indian agriculture.

b) What are the constraints in oilseed crop production?

#### SECTION "B"

Q.11 Fill in the blanks.

- 1) The botanical name of castor is \_\_\_\_\_.
- 2) \_\_\_\_\_ is said to be Golden fibre of India.
- 3) Sunhemp belongs to \_\_\_\_\_ family.
- 4) Pusa phalguni is the popular variety of \_\_\_\_\_.
- 5) Oil content of Niger seed is \_\_\_\_\_.
- 6) \_\_\_\_\_ is the economical part in ginger.
- 7) T-9 is the popular variety of \_\_\_\_\_ crop.
- 8) Green gram can be grown in all the three seasons due to its \_\_\_\_\_.

Q.12 Match the following pairs.

#### "A"

- 1) Foxtail millet
- 2) Proso millet
- 3) Mesta
- 4) Moth bean
- 5) Niger
- 6) Karanj
- 7) Jute
- 8) Marvel grass

#### "B"

- a) *Guizotia abyssinica*
- b) *Corchorus capsularis*
- c) *Hibiscus cannabinus*
- d) *Pongamia glabra*
- e) *Phaseolus acontifolius*
- f) *Panicum millare L.*
- g) *Setaria italica*
- h) *Dicanthium annulatum*



(P.T.O.)

Q.12 Fill in the blanks.

- 1) Transfer of pollen grains from the anther to the stigma of same flower is known as \_\_\_\_\_.
- 2) Pollination and fertilization occur in unopened flower bud is known as \_\_\_\_\_.
- 3) Botanical name of rice is \_\_\_\_\_.
- 4) A pure line is the progeny of a single self fertilized \_\_\_\_\_ plant.
- 5) \_\_\_\_\_ is the removal of immature anthers from a bisexual flower.
- 6) Viable pollen grains fail to fertilize the same flower is known as \_\_\_\_\_.
- 7) The phenomenon of reducing vigour by selfing or inbreeding is known as \_\_\_\_\_.
- 8) Double cross hybrid is a cross between \_\_\_\_\_  $F_1$ s.

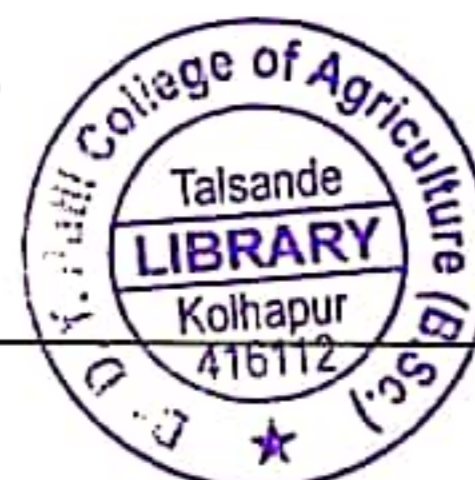
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**B.Sc. (Agri.)**

<b>Semester</b> : III (Old)	<b>Term</b> : I	<b>Academic Year</b> : 2018-19
<b>Course No.</b> : BOT 234	<b>Title</b> : Crop Physiology	
<b>Credits</b> : 3(2+1)		
<b>Day &amp; Date</b> : Friday, 16.11.2018	<b>Time</b> : 9.00 to 12.00	<b>Total Marks</b> : 80

**Note :**

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



## SECTION "A"

- Q.1 Define Crop Physiology. Describe in brief scope and importance of Crop Physiology in Agriculture.
- Q.2 Define photosynthesis and describe in detail role of plant pigments in photosynthesis.
- Q.3 Define transpiration. Write the different types of transpiration. Explain in detail about factors that affect transpiration.
- Q.4 Enlist the criteria for essentiality of elements and write in short deficiency symptoms and function of following elements.
  - a) Nitrogen
  - b) Copper
- Q.5 Describe the reaction of Kreb's cycle.
- Q.6 Distinguish between the following.
  - a)  $C_3$  and  $C_4$  Plant
  - b) Transpiration and Guttation
  - c) Aerobic respiration and Anaerobic respiration
  - d) Macronutrient and Micronutrient
- Q.7 Write short notes.
  - a) Source - sink relationship
  - b) Hydroponics
  - c) Photorespiration
  - d) Antitranspirant
- Q.8 Write in detail about pathway of water across the root cells and enlist the factors affecting process of absorption
- Q.9 Define photoperiodism. Give the classification of plants on the basis of photoperiodism.
- Q.10 Give the classification of plant growth substances and write in detail about physiological role of Auxine and Gibberelin in plant.

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

## SECTION "B"

Q.11 Fill in the blanks.

- 1) Guttation takes place through a specialized structure called\_\_\_\_\_.
- 2) \_\_\_\_\_ are called upward conducting tissue.
- 3) \_\_\_\_\_ is the most commonly used plant hormone for rooting of cuttings.
- 4) Deficiency of Mo causes \_\_\_\_\_disease.
- 5) Outer wall of the guard cell is \_\_\_\_\_ than inner wall.
- 6) For fruit ripening \_\_\_\_\_ is the important growth substance.
- 7) The net gain of ATP in aerobic respiration is\_\_\_\_\_.
- 8) Ca is \_\_\_\_\_element.

Q.12 a) Give full forms of the following

1) CAM

3) R Q



2) PWP

4) CCC

b) State True or False.

- 1) Light reaction of Photosynthesis takes place in chloroplast.
- 2) End product of glycolysis is pyruvic acid.
- 3) R.Q. value of oil seed for eg. groundnut or linseed is one.
- 4) GA is a growth inhibitor.

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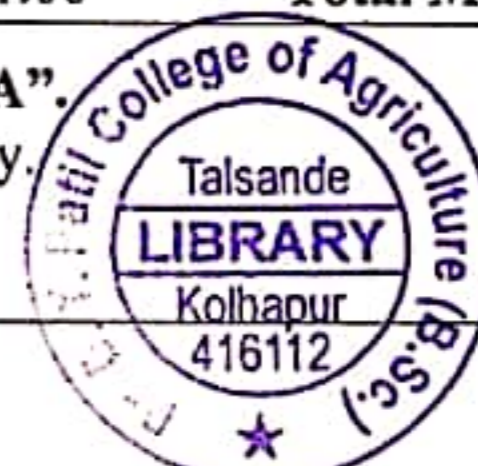
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B.Sc. (Agri.)

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Semester	: III (Old)	Term	: I	Academic Year	: 2018-19
Course No.	: ECON 232	Title	: Production Economics and Farm Management		
Credits	: 2(1+1)				
Day & Date	: Wednesday, 21.11.2018	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 production economics. Discuss the objective and scope of agricultural production economics.
- Q.2 Define iso-cost line. Determine the least cost combination by algebraic and graphic method.
- Q.3 What is farm planning? State the characteristics of good farm plan.
- Q.4 Define farm budgeting. Differentiate between partial and complete budgeting.
- Q.5 What do you mean by production function? Explain different types of production functions.
- Q.6 What is farm management? Enlist the principles of farm management and explain the principle of equi-marginal returns.
- Q.7 State the different types of farming and explain in detail specialized farming.
- Q.8 What is linear programming? Give the assumptions and limitations of LP.
- Q.9 What is risk and uncertainty? Explain types of risk and uncertainty.
- Q.10 Write short notes (Any Two).
- a) Cost concepts
  - b) Types of enterprise relationships
  - c) Expansion path

**SECTION "B"**

- Q.11 Define the following terms.
- 1) Depreciation
  - 2) Farm Inventory
  - 3) Marginal product
  - 4) Iso-quant
- Q.12 State True or False.
- 1) In mixed farming crop enterprise is combined with livestock.
  - 2) When the MP is equal to AP, AP is at its maximum.
  - 3) Product is the result of use of resources or service of resources.
  - 4) Law of increasing returns is applicable to agriculture.

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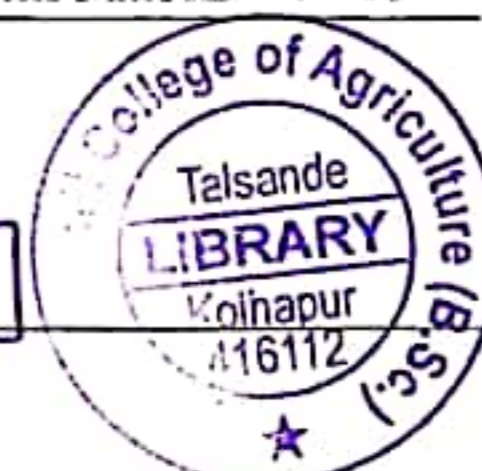
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**SEMESTER END EXAMINATION**

**B.Sc. (Agri.)**

<b>Semester</b> : III (Old)	<b>Term</b> : I	<b>Academic Year</b> : 2018-19
<b>Course No.</b> : ENGG 232	<b>Title</b> : Introduction to Computer and Applications	
<b>Credits</b> : 2(1+1)		
<b>Day &amp; Date</b> : Saturday, 17.11.2018	<b>Time</b> : 9.00 to 11.00	<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.

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**SECTION "A"**

- Q.1 Draw a block diagram of computer and explain in brief about functions of its units. Enlist characteristics of computer.
- Q.2 What is booting of computer? Differentiate between cold and warm booting.
- Q.3 Enlist different input devices and write in brief about keyboard and mouse.
- Q.4 Differentiate between RAM and ROM. Enlist different secondary storage devices.
- Q.5 Write in brief about Disk Operating System and enlist limitations of it.
- Q.6 Explain elements of Window with neat diagram.
- Q.7 What is spreadsheet? Explain the procedure for creating graphs using MS- Excel.
- Q.8 What are the features of word processing packages? Write uses of slide presentation software.
- Q.9 What is internet? Explain in brief applications of internet.
- Q.10 What is Database? Explain in brief the Database Management System (DBMS).

**SECTION "B"**

- Q.11 Give full forms of the following.
- |        |        |
|--------|--------|
| 1) DVD | 2) ROM |
| 3) ALU | 4) LCD |
- Q.12 Fill in the blanks.
- 1) \_\_\_\_\_ printer prints all characters, letters and images as a pattern of dots.
  - 2) QWERTY type of keyboard has \_\_\_\_\_ keys.
  - 3) One Kilobyte is equivalent to \_\_\_\_\_ bytes.
  - 4) \_\_\_\_\_ software is useful for preparation of slide show.

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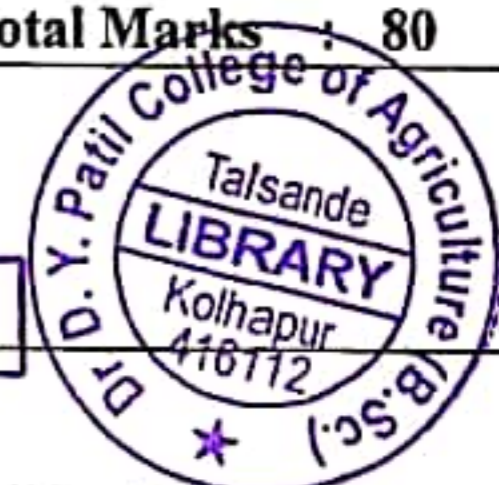
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**B.Sc. (Agri.)**

<b>Semester</b> : III (Old)	<b>Term</b> : I	<b>Academic Year</b> : 2018-19
<b>Course No.</b> : ENTO 231	<b>Title</b> : Insect Morphology and Systematics	
<b>Credits</b> : 3(2+1)		
<b>Day &amp; Date</b> : Monday, 19.11.2018	<b>Time</b> : 9.00 to 12.00	<b>Total Marks</b> : 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.

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## SECTION "A"

- Q.1 Describe the typical insect leg with well labeled diagram. Enlist modifications of insect leg with one example each.
- Q.2 Describe the female reproductive system of cockroach with well labeled diagram.
- Q.3 Enlist mouth parts in insects with examples. Describe chewing and biting type of mouth parts with well labeled diagram.
- Q.4 Describe typical insect antenna. Explain types of antenna with examples.
- Q.5 a) Write the characters of phylum arthropoda.  
b) Describe the factors responsible for insect dominance on earth.
- Q.6 Define metamorphosis. Describe types of metamorphosis with suitable examples.
- Q.7 Write short notes (Any Two).  
a) Insect integument  
b) Types of larva  
c) Wing coupling apparatus
- Q.8 Describe digestive system of cockroach with well labeled diagram.
- Q.9 a) Describe the types of pupa.  
b) Write about the excretion in insects.
- Q.10 Explain the nervous system of insect with well labeled diagram.

## SECTION "B"

- Q.11 Define the following terms.
- |                |                 |                 |                |
|----------------|-----------------|-----------------|----------------|
| 1) Spiracle    | 2) Scelerite    | 3) Synapse      | 4) Species     |
| 5) Aestivation | 6) Paedogenesis | 7) Amphineustic | 8) Hypognathus |
- Q.12 Answer in one sentence.
- 1) State the natural order of dragonfly.
  - 2) Write the head position in red cotton bug.
  - 3) Give exact location of Johnston's organ.
  - 4) What is chorion?
  - 5) What is parthenogenesis?
  - 6) Who is the Father of biological classification?
  - 7) Give the function of Malpighian tubules.
  - 8) State the functions of afferent neurons.



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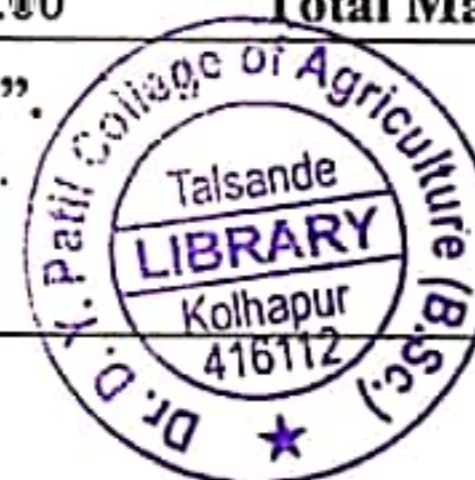
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B.Sc. (Agri.)

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Semester	: III (Old)	Term	: I	Academic Year	: 2018-19
Course No.	: HORT 232	Title	: Production Technology of Vegetables and Flowers		
Credits	: 2(1+1)				
Day & Date	: Thursday, 15.11.2018	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 Write in detail importance and scope of vegetables.
- Q.2 Enlist the different types of vegetable gardens and describe in detail about kitchen garden.
- Q.3 Write cultivation of tomato crop on the following points.
- a) Soil and climate
  - b) Propagation and planting
  - c) Harvesting and yield
  - d) Important varieties
- Q.4 Describe in detail production technology of cabbage based on the following points.
- a) Soil and climate
  - b) Propagation and planting
  - c) Improved varieties
  - d) Harvesting and yield
- Q.5 Write short notes. (Any Two).
- a) Classification of vegetables based on plant part used.
  - b) Raising of seedling in chilli.
  - c) Pruning in rose
- Q.6 Describe in detail production technology of okra based on the following points.
- a) Soil and climate
  - b) Propagation and planting
  - c) Improved varieties
  - d) Important pests and diseases
- Q.7 Complete the following table.

Sr. No.	Name of crop	Botanical name	Seed rate/ha	Varieties	Yield
1)	Ridge gourd				
2)	Cucumber				

- Q.8 Describe in detail cultivation of chrysanthemum on the following points.
- a) Soil and climate
  - b) Propagation and planting
  - c) Pinching or stopping
  - d) Harvesting and yield
- Q.9 Describe in detail production technology of marigold based on the following points.
- a) Important uses
  - b) Propagation and planting
  - c) Types and improved varieties
  - d) Harvesting and yield
- Q.10 What are the different garden styles and types? Discuss in brief about formal garden.

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

## SECTION "B"

Q.11 Fill in the blanks.

- 1) Botanical name of potato is \_\_\_\_\_.
- 2) Tuberose is propagated by \_\_\_\_\_.
- 3) All green is a variety \_\_\_\_\_.
- 4) Rootstock used in rose is \_\_\_\_\_.

Q.12 Match the following pairs.

"A"

- 1) Brinjal
- 2) French bean
- 3) Jasmine
- 4) Sweet potato

"B"

- a) Contender
- b) Convolvulaceae
- c) Oleaceae
- d) *Solanum melongena*



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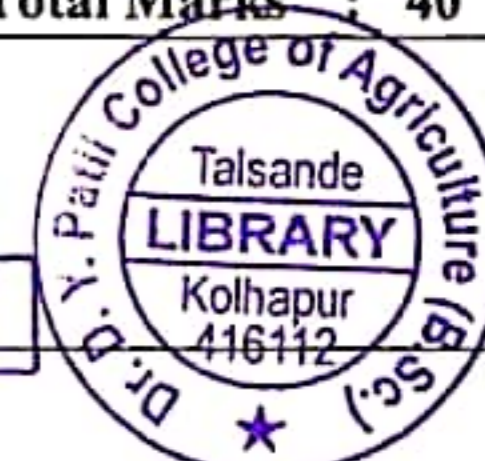
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**SEMESTER END EXAMINATION**

**B.Sc. (Agri.)**

<b>Semester</b> : III (Old)	<b>Term</b> : I	<b>Academic Year</b> : 2018-19
<b>Course No.</b> : PATH 232	<b>Title</b> : Principles of Plant Pathology	
<b>Credits</b> : 2(1+1)		
<b>Day &amp; Date</b> : Tuesday, 13.11.2018	<b>Time</b> : 9.00 to 11.00	<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.

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**SECTION "A"**

- Q.1 What do you mean by epidemiology? Write in short about the essential conditions required for epidemics.
- Q.2 What is dissemination? Describe various agencies involved under continuous dissemination.
- Q.3 Describe in short pre-existing structural defense mechanisms in plants.
- Q.4 Enlist principles of plant disease management and write a note on eradication of plant diseases.
- Q.5 Enlist various methods of application of fungicide? Explain the seed treatment methods.
- Q.6 Describe in brief the cultural practices adopted for plant disease management.
- Q.7 What is plant quarantine? Write about domestic quarantine with examples.
- Q.8 What is biological control? Discuss various mode of action of biological control agents.
- Q.9 How is biotechnology useful in management of plant diseases?
- Q.10 Write concept and advantages of integrated plant disease management.

**SECTION "B"**

- Q.11 Fill in the blanks.
- 1) \_\_\_\_\_ is an important and commonly used fungal bio agent for disease management.
  - 2) A special absorbing structure formed by some parasitic fungi within the cells of the host is termed as \_\_\_\_\_.
  - 3) \_\_\_\_\_ is the phenomenon of growth of one organism at the expense of other.
  - 4) AK toxin is also known as \_\_\_\_\_.
- Q.12 Define the following terms.
- 1) Fungicide
  - 2) Perpetuation
  - 3) Pathogenesis
  - 4) Disease forecasting

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