



# BIOLOGY

## BOOKS - EVERGREEN BIOLOGY (ENGLISH)

### CHEMICAL COORDINATION IN PLANTS

#### Review Questions

1. Name the following:

A growth inhibitor.



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**2. Name the following:**

A gaseous hormone.



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**3. Name the following:**

The tropic movement in response to the stimulus of the chemicals.



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4. Name the following:

Growth movements made by plants in response to contact (touch) with a solid object.



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5. Name the following:

A flower bud which is positively geotropic but when the flower opens it shows negative geotropism



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6. Name the following:

A special apparatus in which if a plant is rotated neutralizes the effect of gravity.



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7. Name the following:

The movement of plant parts in response to the force of gravity.





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**8.** Name the following:

A plant hormone which breaks the dormancy of buds and seeds.



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**9.** Choose the correct alternative :

Which is an auxin?

ATP

Pyruvic acid

Phosphoglyceric acid

Indole acetic acid

A. ATP

B. Pyruvic acid

C. Phosphoglyceric acid

D. Indole acetic acid

**Answer:**



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**10.** Choose the correct alternative :

The growth rate is highest in which light?

1. Red Light

2. White light

3. Green light

4. Blue light

A. Red light

B. White light

C. Green light

D. Blue light

**Answer:**



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**11. Choose the correct alternative :**

Plant hormones are:

1. Growth regulators
2. Growth promoters
3. Growth inhibitors
4. All of these

A. Growth regulators



B. Growth promoters

C. Growth inhibitors

D. All of these

**Answer:**



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**12. Choose the correct alternative :**

Geotropic response is perceived by:

1. Mature roots

2. Elongating roots

3. Root cap

4. Root hairs

A. Mature roots

B. Elongating roots

C. Root cap

D. Root hairs

**Answer:**



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**13.** Choose the correct alternative :

Which one of the following is a natural growth inhibitor ?

1. NAA

2. ABA

3. IAA

4. GA

A. NAA

B. ABA

C. IAA

D. GA

**Answer:**



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**14. Choose the correct alternative :**

Gibberellin promotes cell division and elongation in:

1. Leaves
2. Roots

3. Shoots

4. All of these

A. Leaves

B. Roots

C. Shoots

D. All of these

**Answer:**



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**15.** Choose the correct alternative :

Movements induced in plants by external

Movements induced in plants by external

A. Tactic movement

B. Tropic movement

C. Nastic movement

D. All of these

**Answer:**



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**16.** Choose the correct alternative :

Auxins were first discovered by which scientist while experimenting on oat plant (*Avena sativa*) ?

1. F W Went
2. Darwin
3. Boysen Jensen
4. None of these

A. F W Went

B. Darwin

C. Boysen Jensen

D. None of these

**Answer:**



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**17.** Fill in the blanks with suitable words :

All changes that an organism goes through during its life cycle is called .....



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**18.** Fill in the blanks with suitable words :

Synthetic auxins are used as .....



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**19.** Fill in the blanks with suitable words :

Movement of fungal hyphae towards ..... and peptones is called chemotropism.



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**20.** Fill in the blanks with suitable words :

..... are situated below the bark and is responsible for increase in the diameter of the stem.



**Watch Video Solution**

**21.** Fill in the blanks with suitable words :

..... And ..... are growth inhibitors.



**Watch Video Solution**

**22.** Fill in the blanks with suitable words :

..... are unwanted plants growing in a field  
alongwith a crop.



**Watch Video Solution**

**23.** Fill in the blanks with suitable words :

Auxins were isolated initially from the urine of  
humans who suffered from a disease called

.....



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**24.** Fill in the blanks with suitable words :

..... promote seed germination in cereals and lettuce.



**Watch Video Solution**

**25.** Fill in the blanks with suitable words :

In Ivy and bean ..... promotes rooting of stem cuttings



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**26.** Fill in the blanks with suitable words :

Chlamydomonas and volvox show movement  
by means of .....



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**27.** Fill in the blanks with suitable words :

Mosses and ..... are ciliated and move about  
in water.



**Watch Video Solution**

**28.** Fill in the blanks with suitable words :

Roots are ..... hydrotropic as they bend towards the source of water.



**Watch Video Solution**

**29.** Mention if the following statements are true or false,

By application of gibberellins bolting can be induced artificially in cabbage.



**Watch Video Solution**

**30.** Mention if the following statements are true or false,

The examples of synthetic auxins are IAA and IBA.



**Watch Video Solution**

**31.** Mention if the following statements are true or false,

The secondary roots and branches place themselves at right angles to the force of gravity and are called diaphototropic.



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**32.** Mention if the following statements are true or false,

Gibberellins were first isolated from an algae



[Watch Video Solution](#)

**33.** Mention if the following statements are true or false,

Hydrotropic movements are more powerful







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**34.** Mention if the following statements are true or false,

The growth regulators are called as Phytohormones.



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**35.** Mention if the following statements are true or false,

In flowering plant, a period of vegetative phase is followed by reproductive phase.



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**36.** Mention if the following statements are true or false,

Senescence is separation of leaves, flowers and fruits from the plant body.



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**37.** Mention if the following statements are true or false,

Some organs of plants do not respond to geotropic stimulus and are called Ageotropic.



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**38.** Mention if the following statements are true or false,

Lateral meristems are situated below the bark

and is responsible for increase in the length of the stem.



**Watch Video Solution**

**39.** Mention if the following statements are true or false,

Gibberellins are basic in nature.



**Watch Video Solution**

**40.** Mention if the following statements are true or false,

In unicellular plants, there is overall growth and not confined to any specific region but in multicellular plants, growth is restricted to specific regions having meristematic cells.



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**41.** Give reasons for the following facts:

Dry seeds do not germinate.





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**42.** Give reasons for the following facts:

Plants bend towards the source of light.



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**43.** Give reasons for the following facts:

When apical bud is removed, the next axial bud begins to grow.



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**44.** Give reasons for the following facts:

Some plants flower in summer and some in winters.



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**45.** Give reasons for the following facts:

Rice plants infected by fungus *Gibberella fujikuroi* grow foolishly tall



**Watch Video Solution**

**46.** Give reasons for the following facts:

IAA is not the only naturally occurring auxins.



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**47.** Give reasons for the following facts:

Auxins fail to enhance the growth of intact plants



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**48.** Match the following:

**Column I**

1. Response to gravity
2. Response to touch
3. Response to temperature
4. Response to light
5. Response to water
6. Response to chemicals

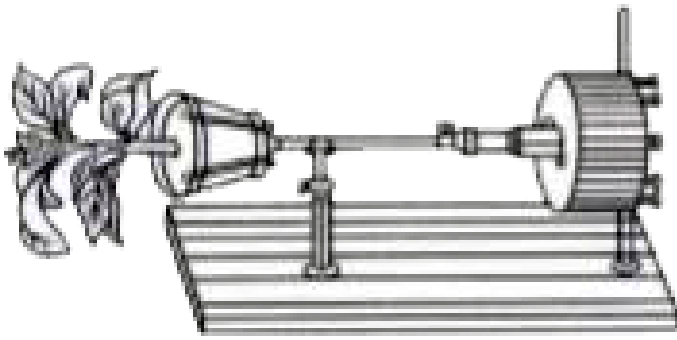
**Column II**

- Thigmotropism
- Hydrotropism
- Phototropism
- Thermotropism
- Chemotropism
- Geotropism



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**49.** The diagram given below is an instrument which is used to eliminate the effect of gravity

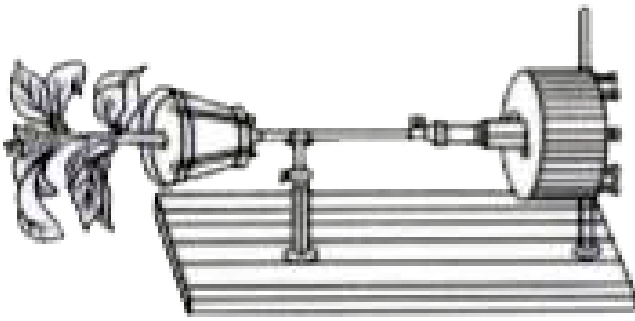


Name the instrument.



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**50.** The diagram given below is an instrument which is used to eliminate the effect of gravity

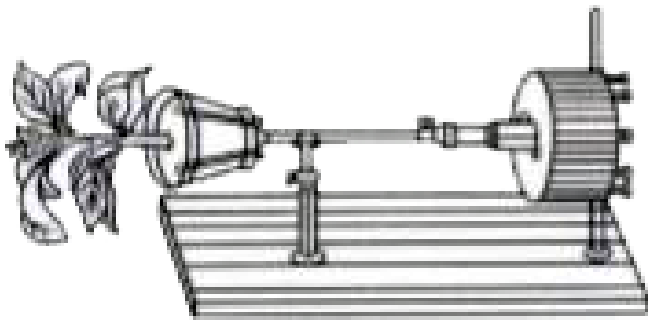


What is the use of this instrument in this experiment?



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**51.** The diagram given below is an instrument which is used to eliminate the effect of gravity



Why does the plant grow straight?



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**52.** The diagram shows some movement in plants.



What is the aim of the experiment?



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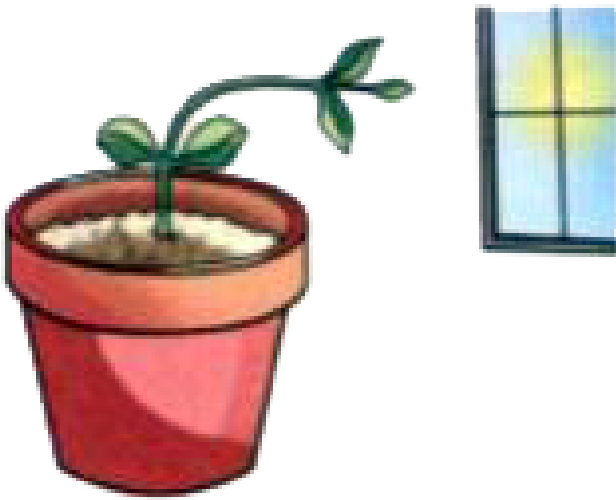
**53.** The diagram shows some movement in plants.



Why does the plant move towards the light source?

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**54.** The diagram shows some movement in plants.



What is geotropism?



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**55.** The diagram shows some movement in plants.



What are tropic movements?

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**56.** The diagram shows some movement in plants.





What will happen if the light source is removed from the experiment?

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57. List any four uses of auxins.

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**58.** What is the full form of: IAA, NAA and IBA?



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**59.** In a wheat field, some broad leaved weeds were seen by a farmer. Which plant hormone would you suggest to get rid of them?



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**60.** Define growth regulators.



**Watch Video Solution**

**61.** Explain briefly apical dominance. Name the hormone that controls it.



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**62.** Give one significant difference between each of the following:

## Geotropism and Phototropism



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**63.** Give one significant difference between each of the following:

Auxins and Gibberellins



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**64.** Give one significant difference between each of the following:

# Plant growth regulators and Plant Growth Inhibitors



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**65.** Give one significant difference between each of the following:

Thigmotropism and Chemotropism



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**66.** Give one significant difference between each of the following:

Movement and Locomotion



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**67.** Explain what would happen if:

Gibberellins are applied to cabbage plant.



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**68.** Explain what would happen if:

Cytokinins are applied to a plant externally.



**Watch Video Solution**

**69.** Explain what would happen if:

Ethylene is sprayed on a mango tree



**Watch Video Solution**

**70.** Explain what would happen if:

A flower is emasculated and auxin is applied to its stigma



**Watch Video Solution**

**71.** Explain what would happen if:

A plant is kept near an open window



**Watch Video Solution**



**72.** Explain the following terms:

Bolting



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**73.** Explain the following terms:

Parthenocarpy



**Watch Video Solution**

**74.** Explain the following terms:

Morphogenesis



**Watch Video Solution**

**75.** Explain the following terms:

Differentiation



**Watch Video Solution**

**76.** Explain the following terms:

Phytohormone



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**77.** The chemical substance P is made and secreted by the meristematic tissue at the tip of stem (or shoot) of a plant. The chemical substance P is responsible for a phenomenon Q in plants in which the stem bends towards the source of light. The same chemical

substance P has an opposite effect on the root of a plant. It causes the root of a plant to bend away from the source of light in a process called R.

What is the chemical substance P ?



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**78.** The chemical substance P is made and secreted by the meristematic tissue at the tip of stem (or shoot) of a plant. The chemical substance P is responsible for a phenomenon

Q in plants in which the stem bends towards the source of light. The same chemical substance P has an opposite effect on the root of a plant. It causes the root of a plant to bend away from the source of light in a process called R.

State whether P prefers to remain in the sunlit side of a stem or in shade.



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**79.** The chemical substance P is made and secreted by the meristematic tissue at the tip of stem (or shoot) of a plant. The chemical substance P is responsible for a phenomenon Q in plants in which the stem bends towards the source of light. The same chemical substance P has an opposite effect on the root of a plant. It causes the root of a plant to bend away from the source of light in a process called R.

What is the effect of substance P on the rate

of growth of

(a) a root and (b) a stem?



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**80.** The chemical substance P is made and secreted by the meristematic tissue at the tip of stem (or shoot) of a plant. The chemical substance P is responsible for a phenomenon Q in plants in which the stem bends towards the source of light. The same chemical substance P has an opposite effect on the root

of a plant. It causes the root of a plant to bend away from the source of light in a process called R.

What is the name of the process

(a) Q and (b) R ?



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**81.** The chemical substance P is made and secreted by the meristematic tissue at the tip of stem (or shoot) of a plant. The chemical substance P is responsible for a phenomenon



Q in plants in which the stem bends towards the source of light. The same chemical substance P has an opposite effect on the root of a plant. It causes the root of a plant to bend away from the source of light in a process called R.

What is the general name of the chemical substance like P ? Name another substance which belongs to this class of chemical substances.



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**82.** Write the functions of Phytohormones.



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**83.** What is meant by positive tropism and negative tropism?



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**84.** What is tendril? Name any two types of tendrils.



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**85.** Expand the following biological abbreviations

(i) (ABA)



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**86.** Expand the following biological abbreviations

(ii) (IAA)



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87. Given below is an experimental setup to demonstrate a particular tropic movement in germinating seeds. Study the diagram and answer the questions that follow :

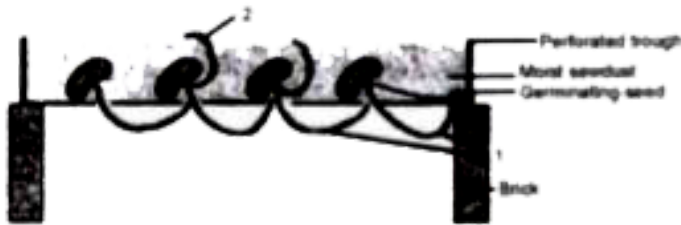


Label the parts 1 and 2.



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**88.** Given below is an experimental setup to demonstrate a particular tropic movement in germinating seeds. Study the diagram and answer the questions that follow :

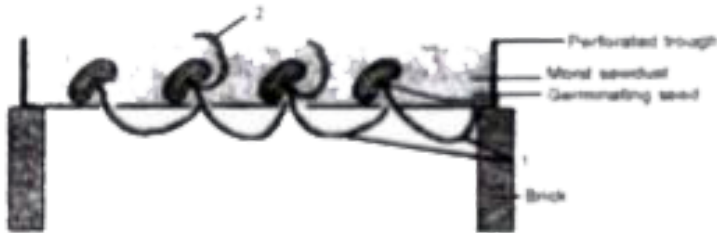


Name the tropic movement shown by part 1.



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**89.** Given below is an experimental setup to demonstrate a particular tropic movement in germinating seeds. Study the diagram and answer the questions that follow :

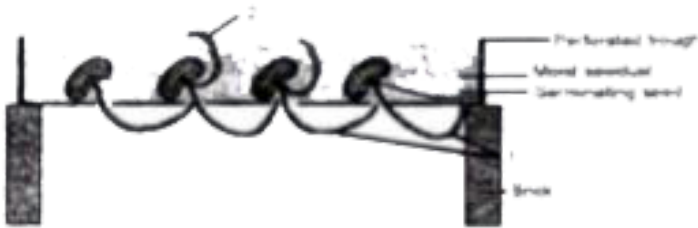


Part 1 is affected by two stimuli. Name them.

Which one of the two is stronger

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90. Given below is an experimental setup to demonstrate a particular tropic movement in germinating seeds. Study the diagram and answer the questions that follow :

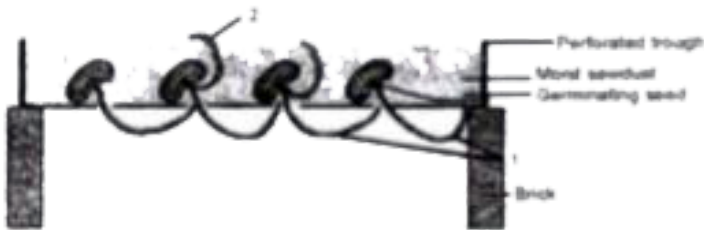


What is Thigmotropism 2 Give one example,



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91. Given below is an experimental setup to demonstrate a particular tropic movement in germinating seeds. Study the diagram and answer the questions that follow :



What is meant by Positive and negative tropic movements in plants

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**92.** State the main functions of the following:

Cytokinins



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**93.** What is Parthenocarpy ? Give one example.



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## 94. Match the following

### Column-I

- (A) Acetone + Carbon disulphide
- (B) Acetone + Aniline
- (C) Berkely and Hartley's method
- (D) Ostwald-Walker's method

### Column-II

- (p) Vapour pressure measurement
- (q) Osmotic pressure measurement
- (r) Maximum boiling azeotrope
- (s) Minimum boiling azeotrope



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## 95. Name the following:

A gaseous hormone.



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**96.** Name the following:

The tropic movement in response to the stimulus of the chemicals.



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**97.** Name the following:

Growth movements made by plants in response to contact (touch) with a solid object.



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**98.** Name the following:

A flower bud which is positively geotropic but when the flower opens it shows negative geotropism



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**99.** Name the following:

A special apparatus in which if a plant is rotated neutralizes the effect of gravity.



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**100.** Name the following:

The movement of plant parts in response to the force of gravity.



**Watch Video Solution**

**101.** Name the following:

A plant hormone which breaks the dormancy of buds and seeds.



**Watch Video Solution**

**102.** Choose the correct alternative :

Which is an auxin?

ATP

Pyruvic acid

Phosphoglyceric acid

Indole acetic acid

A. ATP

B. Pyruvic acid

C. Phosphoglyceric acid

D. Indole acetic acid

**Answer:**



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**103.** Choose the correct alternative :

The growth rate is highest in which light?

A. Red light

B. White light

C. Green light

D. Blue light

**Answer:**



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**104.** Choose the correct alternative :

Plant hormones are: a)Growth regulators

b)Growth promoters c)Growth inhibitors d)All

of these

A. Growth regulators

B. Growth promoters

C. Growth inhibitors



D. All of these

**Answer:**



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**105.** Choose the correct alternative :

Geotropic response is perceived by:

A. Mature roots

B. Elongating roots

C. Root cap

## D. Root hairs

**Answer:**



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**106.** Choose the correct alternative :

Which one of the following is a natural growth inhibitor ?

1. NAA

2. ABA

3. IAA

4. GA

A. NAA

B. ABA

C. IAA

D. GA

**Answer:**



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**107.** Choose the correct alternative :

Gibberellin promotes cell division and elongation in:

- A. Leaves
- B. Roots
- C. Shoots
- D. All of these

**Answer:**



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**108.** Choose the correct alternative :

Movements induced in plants by external

Movements induced in plants by external

A. Tactic movement

B. Tropic movement

C. Nastic movement

D. All of these

**Answer:**



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**109.** Choose the correct alternative :

Auxins were first discovered by which scientist while experimenting on oat plant (*Avenasativa*) ?

- A. F W Went
- B. Darwin
- C. Boysen Jensen
- D. None of these

**Answer:**



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**110.** Fill in the blanks with suitable words :

All changes that an organism goes through during its life cycle is called .....



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**111.** Fill in the blanks with suitable words :

Synthetic auxins are used as .....



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**112.** Fill in the blanks with suitable words :

Movement of fungal hyphae towards ..... and peptones is called chemotropism.



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**113.** Fill in the blanks with suitable words :

..... are situated below the bark and is responsible for increase in the diameter of the stem.



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..... And ..... are growth inhibitors.



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Auxins were isolated initially from the urine of humans who suffered from a disease called .....



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Chlamydomonas and volvox show movement by means of .....



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**Watch Video Solution**

**121.** Fill in the blanks with suitable words :

Roots are ..... hydrotropic as they bend towards the source of water.



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**122.** Mention if the following statements are true or false,

By application of gibberellins bolting can be induced artificially in cabbage.



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**123.** Mention if the following statements are true or false,

The examples of synthetic auxins are IAA and IBA.



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**124.** Mention if the following statements are true or false,

The secondary roots and branches place themselves at right angles to the force of gravity and are called diaphototropic.



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**125.** State True or False

(i) Chromosomal aberrations are commonly

observed in cancer cells

(ii) Mutation is the only phenomenon that leads to variation in DNA.



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**126.** Mention if the following statements are true or false,

Hydrotropic movements are more powerful than geotropic movement.



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**127.** Mention if the following statements are true or false,

The growth regulators are called as Phytohormones.



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**128.** Mention if the following statements are true or false,

In flowering plant, a period of vegetative phase is followed by reproductive phase.



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Senescence is separation of leaves, flowers and fruits from the plant body.



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Some organs of plants do not respond to geotropic stimulus and are called Ageotropic.



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Lateral meristems are situated below the bark and is responsible for increase in the length of the stem.



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In unicellular plants, there is overall growth and not confined to any specific region but in multicellular plants, growth is restricted to specific regions having meristematic cells.



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**134.** Give reasons for the following facts:

Dry seeds do not germinate.



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**135.** Give reasons for the following facts:

Plants bend towards the source of light.



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**136.** Give reasons for the following facts:

When apical bud is removed, the next axial bud begins to grow.



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**137.** Give reasons for the following facts:

Some plants flower in summer and some in winters.



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**138.** Give reasons for the following facts:

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**Watch Video Solution**

**139.** Give reasons for the following facts:

IAA is not the only naturally occurring auxins.



**Watch Video Solution**

**140.** Give reasons for the following facts:

Auxins fail to enhance the growth of intact plants



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**141.** Match the following:

**Column I**

1. Response to gravity
2. Response to touch
3. Response to temperature
4. Response to light
5. Response to water
6. Response to chemicals

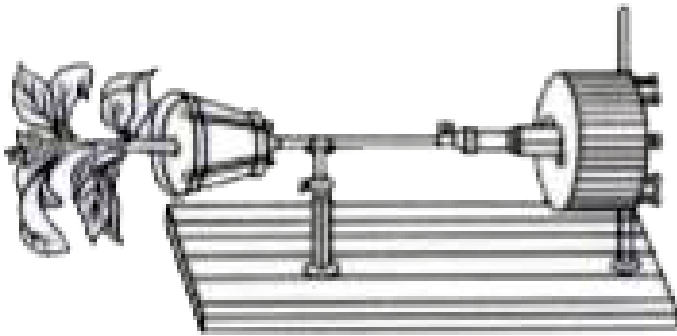
**Column II**

- Thigmotropism
- Hydrotropism
- Phototropism
- Thermotropism
- Chemotropism
- Geotropism



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**142.** The diagram given below is an instrument which is used to eliminate the effect of gravity



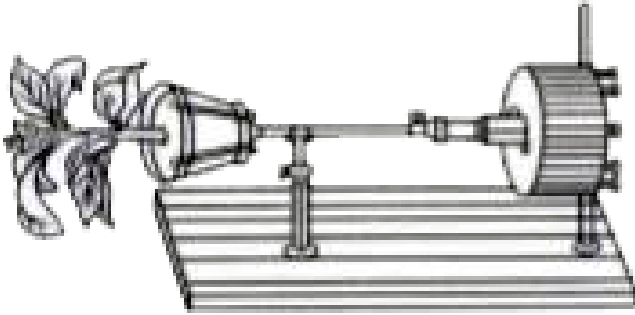
Name the instrument.



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**143.** The diagram given below is an instrument which is used to eliminate the effect of gravity

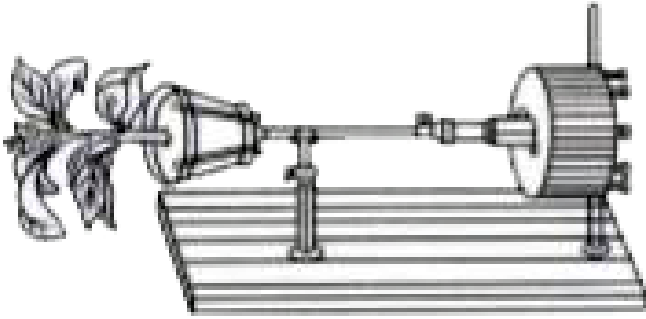


What is the use of this instrument in this experiment?



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**144.** The diagram given below is an instrument which is used to eliminate the effect of gravity



Why does the plant grow straight?

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**145.** The diagram shows some movement in plants.



What is the aim of the experiment?

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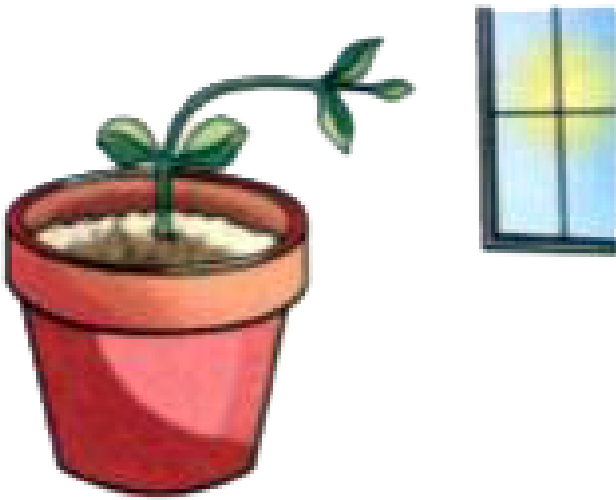
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Why does the plant move towards the light source?

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What is geotropism?



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**148.** The diagram shows some movement in plants.



What are tropic movements?

 [Watch Video Solution](#)

**149.** The diagram shows some movement in plants.



What will happen if the light source is removed from the experiment?



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150. List any four uses of auxins.



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**151.** What is the full form of: IAA, NAA and IBA?



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**152.** In a wheat field, some broad leaved weeds were seen by a farmer. Which plant hormone would you suggest to get rid of them?



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**153.** Define growth regulators.



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**154.** Explain briefly apical dominance. Name the hormone that controls it.



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**155.** Give one significant difference between each of the following:

## Geotropism and Phototropism



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**156.** Give one significant difference between each of the following:

Auxins and Gibberellins



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**157.** Give one significant difference between each of the following:

# Plant growth regulators and Plant Growth Inhibitors



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**158.** Give one significant difference between each of the following:

Thigmotropism and Chemotropism



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**159.** Give one significant difference between each of the following:

Movement and Locomotion



**Watch Video Solution**

**160.** Explain what would happen if:

Gibberellins are applied to cabbage plant.



**Watch Video Solution**

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Cytokinins are applied to a plant externally.



**Watch Video Solution**

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Ethylene is sprayed on a mango tree



**Watch Video Solution**

**163.** Explain what would happen if:

A flower is emasculated and auxin is applied to its stigma



**Watch Video Solution**

**164.** Explain what would happen if:

A plant is kept near an open window



**Watch Video Solution**

**165.** Explain the following terms:

Bolting



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**166.** Explain the following terms:

Parthenocarpy



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**167.** Explain the following terms:

Differentiation



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**168.** Explain the following terms:

Differentiation



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**169.** Explain the following terms:

Phytohormone



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**170.** The chemical substance P is made and secreted by the meristematic tissue at the tip of stem (or shoot) of a plant. The chemical substance P is responsible for a phenomenon Q in plants in which the stem bends towards the source of light. The same chemical

substance P has an opposite effect on the root of a plant. It causes the root of a plant to bend away from the source of light in a process called R.

What is the chemical substance P ?



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**171.** The chemical substance P is made and secreted by the meristematic tissue at the tip of stem (or shoot) of a plant. The chemical substance P is responsible for a phenomenon

Q in plants in which the stem bends towards the source of light. The same chemical substance P has an opposite effect on the root of a plant. It causes the root of a plant to bend away from the source of light in a process called R.

State whether P prefers to remain in the sunlit side of a stem or in shade.



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**172.** The chemical substance P is made and secreted by the meristematic tissue at the tip of stem (or shoot) of a plant. The chemical substance P is responsible for a phenomenon Q in plants in which the stem bends towards the source of light. The same chemical substance P has an opposite effect on the root of a plant. It causes the root of a plant to bend away from the source of light in a process called R.

What is the effect of substance P on the rate

of growth of

(a) a root and (b) a stem?



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**173.** The chemical substance P is made and secreted by the meristematic tissue at the tip of stem (or shoot) of a plant. The chemical substance P is responsible for a phenomenon Q in plants in which the stem bends towards the source of light. The same chemical substance P has an opposite effect on the root

of a plant. It causes the root of a plant to bend away from the source of light in a process called R.

What is the name of the process

(a) Q and (b) R ?



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**174.** The chemical substance P is made and secreted by the meristematic tissue at the tip of stem (or shoot) of a plant. The chemical substance P is responsible for a phenomenon

Q in plants in which the stem bends towards the source of light. The same chemical substance P has an opposite effect on the root of a plant. It causes the root of a plant to bend away from the source of light in a process called R.

What is the general name of the chemical substance like P ? Name another substance which belongs to this class of chemical substances.



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**175.** Write the functions of Phytohormones.



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**176.** What is meant by positive and negative adsorptions?



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**177.** What is tendril? Name any two types of tendrils.



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**178.** Expand the following biological abbreviations

(ii) (IAA)



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**179.** Expand the following biological abbreviations

(ii) (IAA)



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**180.** Given below is an experimental setup to demonstrate a particular tropic movement in germinating seeds. Study the diagram and answer the questions that follow :

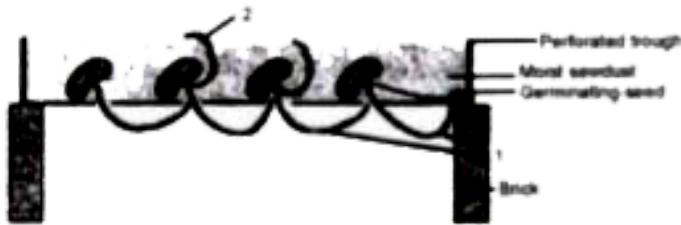


Label the parts 1 and 2.



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**181.** Given below is an experimental setup to demonstrate a particular tropic movement in germinating seeds. Study the diagram and answer the questions that follow :

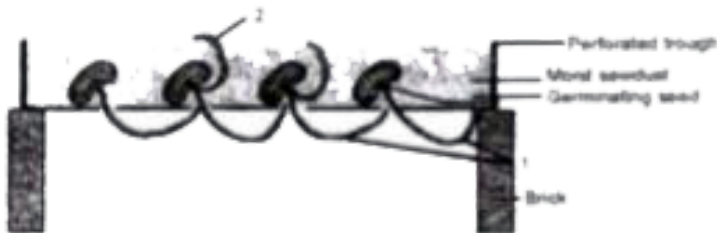


Name the tropic movement shown by part 1.



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**182.** Given below is an experimental setup to demonstrate a particular tropic movement in germinating seeds. Study the diagram and answer the questions that follow :



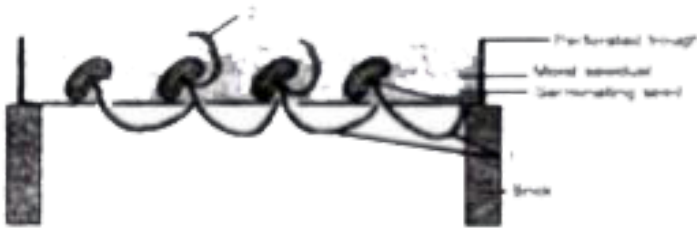
Part 1 is affected by two stimuli. Name them.

Which one of the two is stronger



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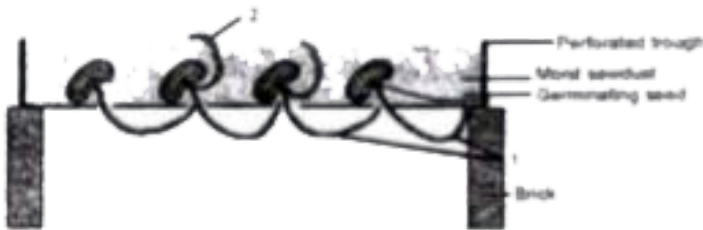
**183.** Given below is an experimental setup to demonstrate a particular tropic movement in germinating seeds. Study the diagram and answer the questions that follow :



What is Thigmotropism 2 Give one example,

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**184.** Given below is an experimental setup to demonstrate a particular tropic movement in germinating seeds. Study the diagram and answer the questions that follow :



What is meant by Positive and negative tropic movements in plants

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**185.** State the main functions of the following:

Cytokinins



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**186.** What is Parthenocarpy ? Give one example.



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