CBTA FOCUS AREA REVISION QUESTIONS PLANT GROWTH AND DEVELOPMENT

Each question from 1 to 10 carries 1 score.

1) The most widely used compound as source of ethylene is_____
2) A farmer wants to remove the small dicot weeds growing along with his monocot crop. Which plant hormone would you suggest to achieve this?
3) Which plant hormone acts as an antagonist to GAs?
4) Name a gaseous PGR.
5) Mention a natural substance isolated from coconut milk having cytokinin-like activities.
6) Point out two Plant growth inhibitors which promote abscission of plant organs.
7) Mention a plant hormone which can induce rooting in a twig.
8) Name any two growth promoters which delay senescence.
9) Name a plant hormone which can induce Partenocarpy.
10) Which plant hormone is seen more in regions where rapid cell division occurs?

Each question from 11 to 20 carries 2 scores.

11) Spraying Ethylene on pineapple plantation is quite common. Point out the outcomes of this activity.
12) What is meant by Respiratory climactic?
13) Suggest a method to increase the yield of sugarcane by the application of plant hormone.
14) Define the term apical dominance. Name the PGR which induces it. Name the PGR which can overcome it.
15) Name the PGR which is called a Stress hormone. Why is it called so?
16) What is meant by Bolting. Name the hormone which promotes Bolting
17) Would a defoliated plant respond to photoperiodic cycle? Why?
18) Name any two natural auxins & synthetic auxins.
19) Give reasons :- a) Auxins are widely applied in tea plantations and hedge-making.
b) A ripened fruit is usually mixed with unripened fruit to speed up ripening.
20) How does ethylene helps in absorption of water in plants?

Each question from 21 to 25 carries 3 scores.

21) Differentiate between a short day plant and a long day plant.
22. Match the following

Column A	**Column B**
Weed free lawn.	ABA
Sprouting of potato tubers.	Gibberellins
To produce new leaves and chloroplasts.	Ethylene
Petiole elongation in deep water rice plants.	Cytokinins
Stimulate closure of stomata.	Auxin
Early seed production in conifers.	Ethylene

23) Expand PGR. Explain the two groups of PGR based on their functions on living plants.
24) Define Photoperiodism. Explain the three types of plants based on Photoperiodism.
25) Assign the plant growth regulators [a-f].

Applications	**Plant Growth Regulators**
To increase the length of grapes stalks.	a
To promote lateral shoot growth	b
To initiate rooting in stem cuttings	c
To speed up the malting process in brewing industry	d
To inhibit seed germination.	e
To promotes female flowers in cucumbers	f

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ANSWERS

1) Ethephon. 2) 2,4 D. 3) ABA. 4) Ethylene. 5) Zeatin. 6) Ethylene & ABA.
7) Auxin. 8) Cytokinins, Gibberellins. 9) Auxin. 10) Cytokinins.

11) Ethylene helps to initiate flowering in pineapple and for synchronising fruit-set in pineapples.

12) Ethylene is highly effective in fruit ripening. It enhances the respiration rate during ripening of the fruits. This rise in the rate of respiration is called Respiratory climactic.

13) Sugarcane stores carbohydrate as sugar in their stems. Spraying sugarcane crop with gibberellins increases the length of the stem, thus increasing the yield.

14) In higher plants, the growing apical bud inhibits the growth of the lateral buds. This phenomenon is called as Apical dominance. Auxin induces apical dominance. Cytokinins overcomes apical dominance

15) ABA inhibits seed germination. ABA stimulates the closure of stomata and increases the tolerance of plants to various kinds of stresses. Therefore, it is also called the stress hormone.

16) The process of internode elongation just prior to flowering in many plants with rosette habit like beet, cabbages is called as Bolting. Gibberellins promotes bolting.

17) No. Leaves are the site of photoperiodic perception in plants. It has been hypothesised that there is a hormonal substance that is responsible for flowering. This hormonal substance migrates from leaves to shoot apices for inducing flowering .So a defoliated plant won't respond to photoperiodic cycle.

18) Natural Auxin -IAA ,IBA Synthetic Auxin - NAA, 2-4D

19) a- Auxins are responsible for apical dominance and so it inhibits the growth of lateral buds b -Ripe fruits produces a gaseous plant hormone ethylene which can accelerate the ripening of unripe fruits

20) Ethylene promotes root growth. It also helps in root hair formation, thus helping the plants to increase their absorption surface and thereby increase the rate of absorption of water.

21) Long day plants are plants that require the exposure to light for a period more than its critical duration to initiate flowering. Short day plants are plants that require the exposure to light for a period less than this critical duration to initiate flowering.

22)

Column A	Column B
Weed free lawn	Auxin
Sprouting of potato tubers.	Ethylene
To produce new leaves & chloroplasts in leaves	Cytokinins
Petiole elongation in deep water rice plants.	Ethylene
Stimulates the closure of stomata	ABA
Early seed production in conifers	Gibberellins

23) The PGRs can be broadly divided into two groups based on their functions in a living plant body.

1) Plant growth promoters - These are involved in growth promoting activities, such as cell division, cell enlargement, pattern formation, tropic growth, flowering, fruiting and seed formation. e.g., auxins, gibberellins and cytokinins.

2) The PGRs of the other group play an important role in plant responses to wounds and stresses of biotic and abiotic origin. They are also involved in various growth inhibiting activities such as dormancy and abscission. The PGR abscisic acid belongs to this group. The gaseous PGR, ethylene, could fit either of the groups, but it is largely an inhibitor of growth activities.

24) Flowering in certain plants depends on a combination of light and dark exposures and also their relative durations. This response of plants to periods of day/night is termed as photoperiodism.

-Some plants require the exposure to light for a period more than a well-defined critical duration to initiate flowering. This group of plants are called Long day plants.

-Some plants require the exposure to light for a period less than this critical duration to initiate flowering. This group of plants are termed Short day plants.

-In some plants , there is no such correlation between exposure to light duration and induction of flowering response. Such plants are called day-neutral plants

25) a- Gibberellins, b-Cytokinins, c-Auxin, d-Gibberellins, e-ABA, f-Ethylene.