Chapter - 7
Control and Coordination

Q: 1 **Sapna suffers from a condition due to which her average blood sugar level is 174 mg/dL. The average blood sugar level in a healthy adult is <140 mg/dL.**

Which of the following could be the cause of Sapna's condition?

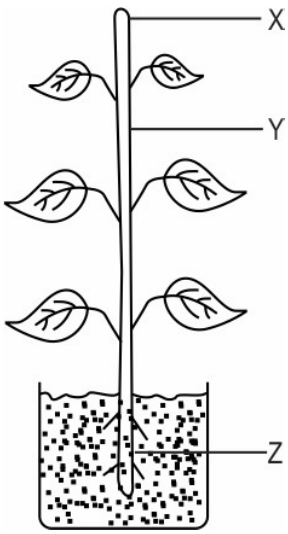
1. insufficient production of thyroxine in her body
2. insufficient production of insulin in her body
3. excess production of thyroxine in her body
4. excess production of insulin in her body

Q: 2 **Auxin is a plant hormone that promotes cell elongation and is produced by the apical meristem. It inhibits the growth of lateral buds which are present at nodes (where leaves attach to the stem). As long as sufficient auxin is produced by the apical meristem, the lateral buds remain dormant.**

A gardener wants the plants in the hedge that he is growing to become bushier with more branches. Which of the following should he do?

1. spray water on the tips of the stems to increase growth
2. dig around the plant roots and apply more manure
3. trim the hedge by cutting off the tips of the stems
4. remove all the weeds that grow around the hedge

Q: 3 **Shown in the figure below is a plant in which auxin is synthesised at part X of the plant. Geeta took the potted plant and cut off part X. She then took the plant and kept it near a window with sunlight and observed it after 7 days.**



Which of the following is she likely to have observed?

1. Part Y grew and bent towards the window.
2. Part Z started growing upwards and out of the soil.
3. Part Y did not grow at all.
4. Part Y grew upwards.

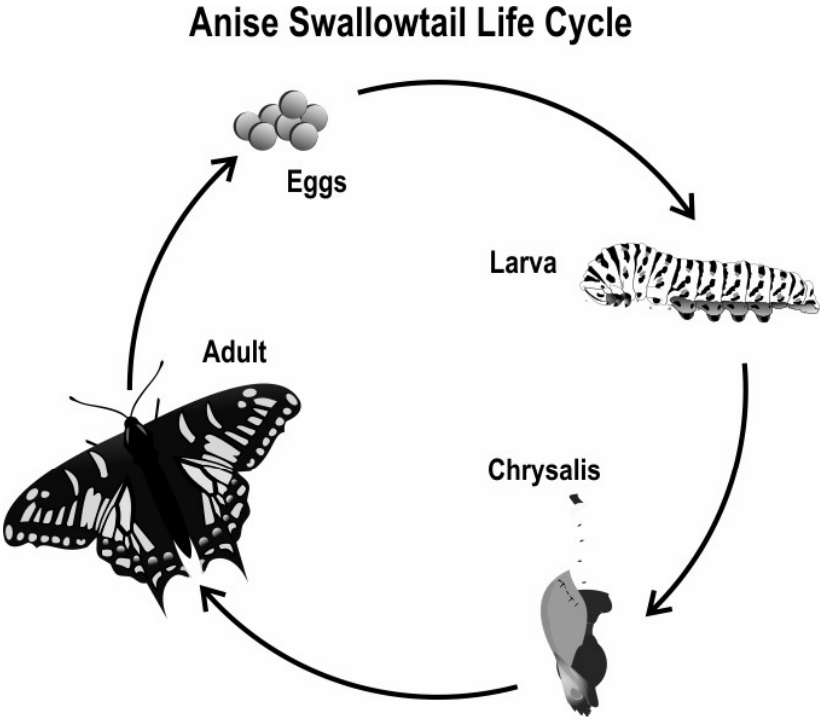
Q: 4 **During pollination, plants ensure that the pollen grain from a species germinates on the stigma of the same species.**

Which of the following ensures this?

1 hydrotropism **2** chemotropism **3** phototropism **4** geotropism

Q: 5 **Metamorphosis is a biological process by which an animal physically develops after birth or hatching, involving a conspicuous and relatively abrupt change in the animal's body structure through cell growth and differentiation. Some insects, fish, amphibians, molluscs, crustaceans and other groups undergo metamorphosis, which is often accompanied by a change of nutrition source or behaviour.** **[2]**

The diagram below shows such metamorphosis in butterflies.



(a) What are the chemicals that control such developmental changes in the butterfly's body structure called?
(b) Name ONE developmental change (other than external changes in body structure) in a human female during puberty brought about by the action of the type of chemicals mentioned in (a).
(c) What is the most likely genetic difference between the larval and adult stages in the life cycle of the butterfly shown above?

Q: 6 **(a) As first line of defense, stress hormones are released in humans. As an equivalent, which hormone is most likely to be released as first line of defense in plants?** **[2]**
(b) There have been reports of plant hormones being found in animal bodies even when they are not synthesised by the animal. What can be the most common pathway of entry of such hormones in animals?

Q: 7 **(a) Name ONE plant hormone that controls directional growth.** **[2]**
(b) Plant hormones are also referred to as growth regulators and can be controlled by a number of stimuli. Mention ONE point of difference between the functioning of animal growth hormones and plant growth regulators with respect to such control.

Q: 8 **Sheila saw a snake and instantly jumped back. She then slowly moved away from the snake.** **[1]**

What is the difference between the two actions of instantly jumping and walking away?

Q: 9 **Hema bought some unripe tomatoes and left half of them in a brown paper bag and the other half in an open tray. After two days she noticed that the tomatoes in the paper bag had ripened, but the ones in the open tray had not.** **[2]**

(a) What hormone facilitated the ripening of tomatoes?
(b) Why did the tomatoes in the paper bag ripen faster?

Q: 10 **While on a roller coaster ride, Aditya noticed an increase in his heartbeat and his breathing. Which hormone is responsible for the changes in Aditya's body?** **[1]**

Q: 11 **'Plant growth regulators do not always promote growth.'** **[1]**

Cite one example in support of the above statement and mention the action of the same.

The table below gives the correct answer for each multiple-choice question in this test.

Q.No	Correct Answers
1	2
2	3
3	3
4	2

Q.No	Teacher should award marks if students have done the following:	Marks
5	(a) hormones	0.5
	(b) onset of menstrual cycle	0.5
	(c) There is no genetic difference in the larval and adult stages if the butterfly.	1
6	(a) Abscisic acid/ ABA	1
	(b) through food	1
7	(a) auxin	1
	(b) Animal growth hormones cannot promote growth under the influence of external stimuli like light, gravity etc.while plant growth regulators do.	1
8	The jump was an involuntary quick reflex action. [0.5 marks] Walking away was a voluntary slow action. [0.5 marks]	1
9	(a) ethylene	1
	(b) Ethylene is a gaseous hormone and the paper bag prevented it from diffusing into the air. Hence the tomatoes ripened faster.	1
10	adrenaline	1
11	0.5 marks for each correct point: - abscissic acid - promotes ageing and senescence	1