S.4 BIOLOGY ASSESSMENT TEST

TIME: 90 MINUTES TOPIC: COORDINATION IN PLANTS

SECTION A

1. A plant growth movement in response to a stimulus from external environment is called

A. tropism C. A tactic movement.

B. photoperiodism. D. A nastic movement.

2. Growth of plant root towards water is called positive

A. Hydrotropism C. Phototropism

B. Geotropism D. thigmotropism

3. Which one of the following is an example of a tactic response?

A. Rolling up of leaves on a sunny day.

B. Withdrawal by blowfly larvae from light.

C. Withdrawal of the hand from a hot object.

D. Bending of a plant towards light.

4. Which of the following is true about nastic response?

A. Depends on the different. C. It is relatively slow.

B. Does not involve hormones. D. Does not involve only growth.

5. Which one of the following responses is a directional growth movement?

A. Taxis B. Reflex C. Tropic D. Nastic

6. When the tip of a maize coleoptile is covered with an aluminum foil and then illuminated on one side, it grows straight because,

A. The foil kills the hormones in the coleoptile

B. The tip does not receive the light stimulus

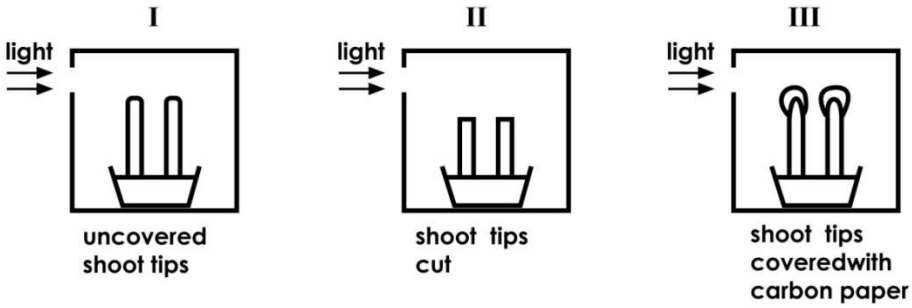
C. Hormones in the coleoptile move to the zone of elongation

D. The foil activates the hormones in the coleoptile

7. ***Mimosa pudica*** exhibits which type of nastic response?

A. Photonasty B. Hydronasty C. Haptonasty D. Thermonasty

8. Figure 1 represents a setup of experiments to show the effect of unilateral lighting on plant shoots. Fig.1



In which experiment(s) would the shoots grow bending towards light?

A. 1 and 11 B. 1 and 111 C. 11 and 111 D. 1 only.

9. When a seedling is placed on a klinostat, no curvature occurs because

A. Auxins are not produced
B. Growth is accelerated
C. Auxins are uniformly distributed in the growing parts
D. All parts of the seedling are uniformly lit

10. The effect of unidirectional light on the distribution of auxins in the tip of a plant shoot is
A. uniform distribution of auxins around the tip.
B. reduction in concentration of auxins on the illuminated side of the plant.
C. increase in auxins on the illuminated side of the plant.
D. inhibition of movement of auxins down the plant.

11. Which one of the following is NOT correct about tropic response?. It is
A. Directional
B. A result of growth
C. Caused by external stimulus
D. A movement of the whole organism

12. Which one of the following is an example of tropism?
A. Withdraw of wood from light
B. Bending of mimosa plant in touch
C. Withdraw of house fly larva from light
D. Growing of a bean root towards water

13. The radicle of a seedling is able to bend down wards in search for water mainly because;
A. Auxins concentrated in the region towards light causing this region to elongate
B. Auxins concentrated in the region away from light causing this region to elongate
C. Auxins concentrated in the region away from light causing this region to grow slowly.
D. Auxins concentrated in the region towards light causing the region to grow slowly.

14. When a seedling is fixed on a rotating clinostat and placed in a horizontal position, the shoot continues to grow in a horizontal position because:
A. Auxins accumulate on the lower side of the shoot.
B. Production of auxins stops
C. Auxins are uniformly distributed in the shoot
D. Auxins accumulate on the upper side of the shoot

15. Which one of the following is a difference between tropic responses and nastic responses?

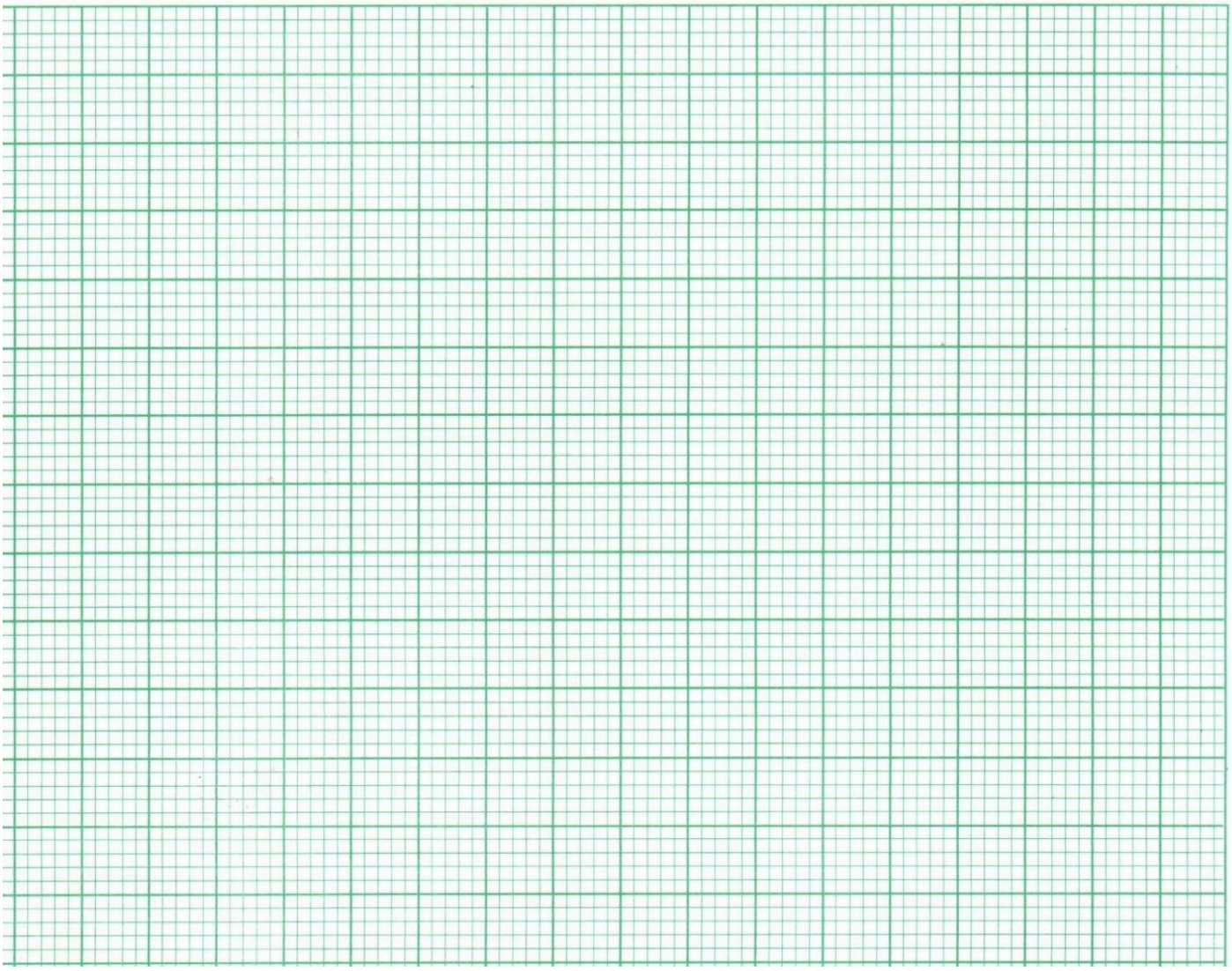
	Tropic Responses	Nastic responses
A	Not growth movements	Are growth responses
B	Not caused by hormones	Caused by hormones
C	Take place in growing tips of plants	Not restricted to growing tips
D	Doesn't depend on the direction of the stimulus	Depend on direction of stimulus

SECTION B

16. An experiment was carried out to investigate the effect of applying different concentrations of auxins on roots and shoots of plant seedlings. The results obtained were expressed as a percentage stimulation (+) or inhibition of growth compared with untreated controls. The results were recorded as shown in the table below. ***(Negative values are as a result of growth inhibition, while positive values are as a result of growth stimulation).***

Concentration of auxins (ppm)		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Percentage stimulation of inhibition of growth	Root	+5	+35	+50	+10	-50	-80	-90	--95	-100
	Shoot	0	0	0	+15	+30	+50	+105	+195	+5

(a) On the same axes, represent the above information on a suitable graph. ***(08 marks)***



(b) From the graph, Describe the effect of varying auxin concentration on the growth response of;

(i) Roots; ***(03 marks)***

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(ii) Shoots (05 marks)

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(c) State two factors that can affect the distribution of auxins in a plant. (02 marks)

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(d) Outline two responses in plants that are controlled by auxins. (02 marks)

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17. ***(a)*** What kind of response is demonstrated when maggots placed in a choice chamber move towards the wet part? ***(01 mark)***

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(b) Give the importance of the response stated in (a) to the maggots ***(02 marks)***

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(c) Explain any three types of tropic responses. ***(04 marks)***

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(d) Explain one significance of tropic responses in;

(i) Providing support to plants ***(01 ½ marks)***

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(ii) Aiding photosynthesis ***(01 ½ marks)***

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18. ***(a)*** Distinguish between phototropism and geotropism. ***(02 marks)***

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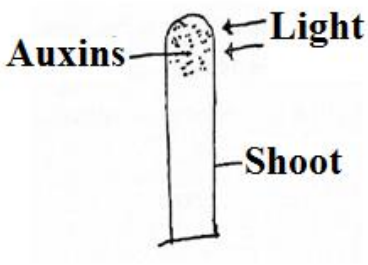
(b) Figure 2 below shows a shoot tip placed in total darkness and exposed to a single source of light.



(i) In the space on the figure above, draw the appearance of the shoot after 3 days. ***(01 mark)***

(ii) Explain the appearance of the shoot in (a)(i) above ***(03 marks)***

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(iii) Suggest the effect of light from a single direction onto the taproot of a plant. ***(01 mark)***

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(c). Suggest three advantages of geotropic responses for a seed germinating in soil. ***(03 marks)***

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SECTION C

1. ***(a)*** Distinguish between Coordination and Irritability. ***(02 marks)***

(b). Define the three main responses in plants. ***(03 marks)***

(c). With examples in each, Describe the forms of each of the response you have mentioned in (b) above. ***(10 marks)***

2. ***(a)*** Giving any two regions where they are found in plants, what are auxins? ***(03 marks)***

(b). Describe the effect of Auxins on each of the plant parts you have mentioned in (a) above. ***(10 marks)***

(c). Other than Auxins, state other four substances having a similar effects to the plant's physiology. ***(02 marks)***

END!!!

"Don´t ask what the world needs. Ask what makes you come alive, and go do it."