

KOLEKSI SOALAN KBAT BIOLOGI 2015

Soalan 6/16

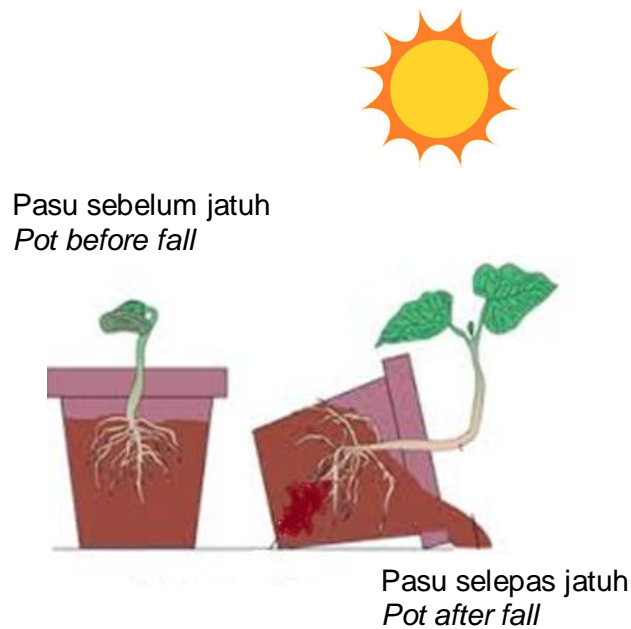
Disediakan oleh [Cikgu Azrie](#)
Answer scheme translated by [SPM Soalan](#)

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Question 6

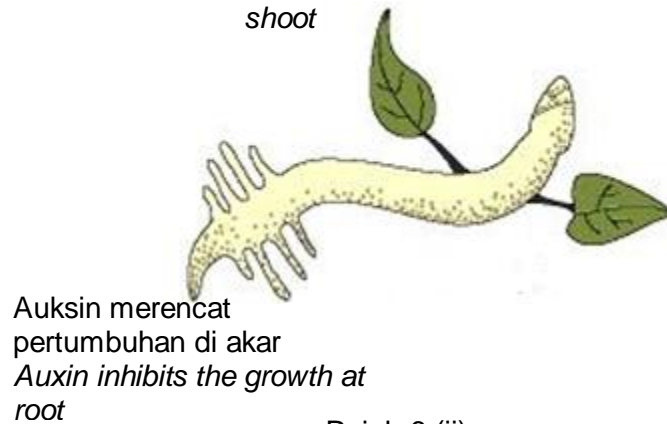
Fototropisme merupakan tumbesaran organism bergerak balas terhadap cahaya. Keadaan ini bukan sahaja perhatikan pada tumbuhan tetapi berlaku juga pada organism lain seperti kulat.

Phototropism is the growth of organisms in response to light. It is most often observed in plants, but can also occur in other organisms such as fungi.



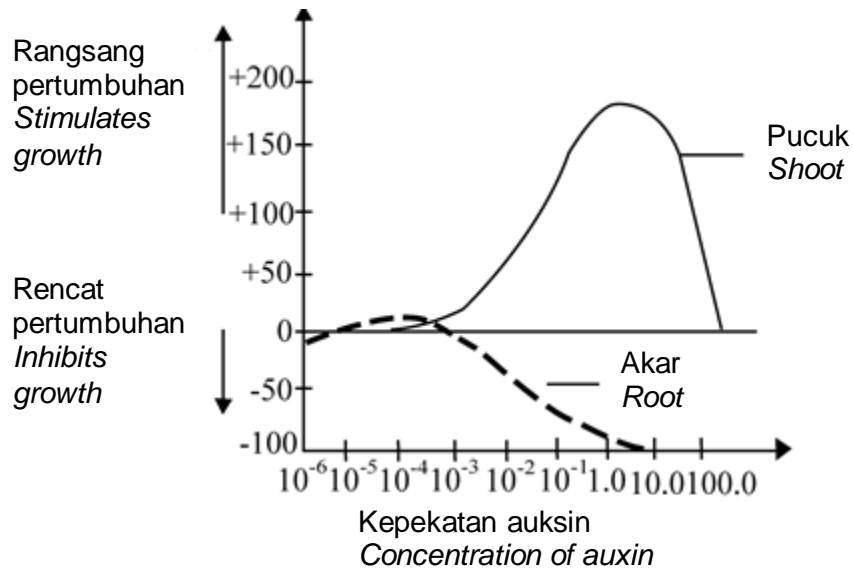
Rajah 6 (i)
Figure 6 (i)

Auksin merangsang pertumbuhan di pucuk
Auxin stimulates the growth at shoot



Rajah 6 (ii)
Figure 6 (ii)

- a) (i) Berdasarkan rajah 6 (i) dan 6 (ii) huraikan bagaimana gerak balas tumbesaran pucuk pokok terhadap cahaya.
Based on figure 6 (i) and 6 (ii), explain how the growth of shoot in response to the light.
 Kefahaman[2 markah]

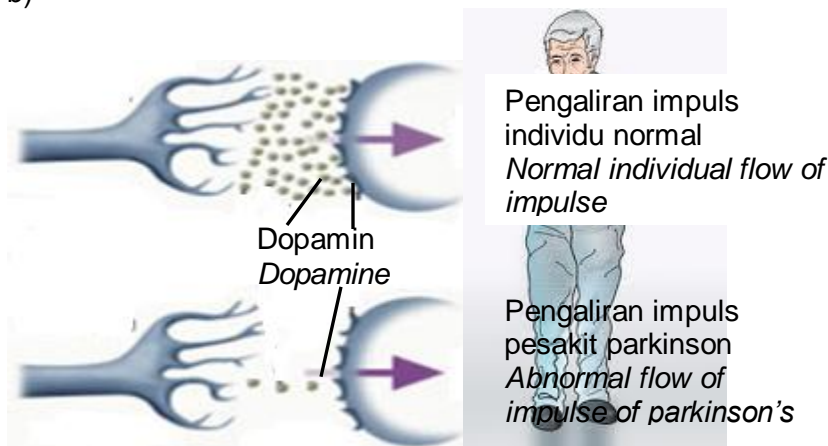


Graf 6 (i)
 Graf 6 (i)

- a) (ii) Berdasarkan Graf 6 (i), nyatakan kepekatan auksin yang menggalakkan pertumbuhan akar. Pada pendapat anda, apakah yang akan berlaku apabila kepekatan auksin melebihi 10⁻³mgdm⁻³
Based the Graph 6 (i), state the concentration of auxin that promotes the growth of the root? In your opinion, what will happen when the concentration of auxin exceeds 10⁻³mgdm⁻³

Kefahaman[4 markah]

b)



- b) Datuk Kamariah berumur 80 tahun. Beliau sering mengalami tangan dan jari yang terketar-ketar, kehilangan memori dan sedikit nyanyuk. Pada pandangan anda, apakah penyakit yang dihadapi oleh datuk Kamariah dan huraikan. Cadangkan cara yang berkesan untuk merawat dan menjaga beliau.

Kamariah's grandfather is 80 years old. He suffers from tremors especially of the hands and fingers, develops memory loss and is senile. In your opinion, what do you think Kamariah's grandfather is suffering from and describe. Explain how to treat and take care of him.

Aplikasi [6 markah]

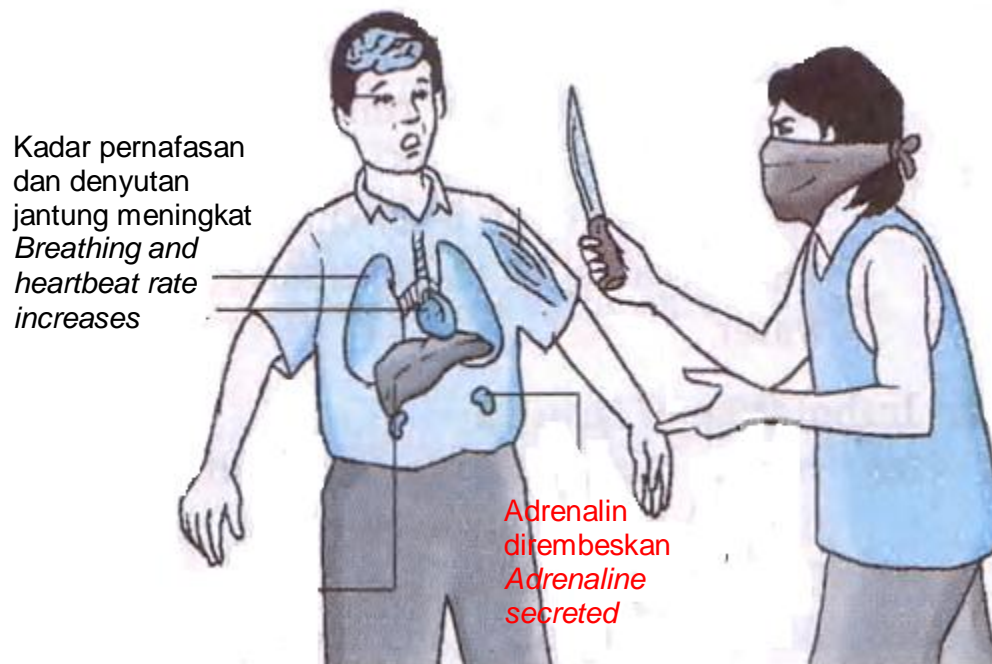
- c) Situasi lawan atau selamatkan diri juga dikenali sebagai gerak balas terhadap tekanan takut merupakan reaksi fisiologi dalam bergerak balas menyelamatkan diri terhadap situasi cemas, bahaya atau ancaman. Ia diterangkan pertama kali oleh Walter Bradford Cannon. Menurut teori beliau haiwan bereaksi terhadap ancaman dengan merembeskan sesuatu hormon yang mempengaruhi tindakan lawan atau menyelamatkan diri. Gerak balas ini dikenal pasti sebagai adaptasi umum terhadap sesuatu sindrom yang mengawal atur tekanan pada kalangan vertebrata dan organisma lain.

Bagaimanakah badan dapat menjalankan mekanisme kawalaturan bagi menghadapi situasi di atas.

The fight-or-flight response is also called the acute stress response is a physiological reaction that occurs in response to a perceived harmful event, attack, or threat to survival. It was first described by Walter Bradford Cannon. His theory states that animals react to threats with a general discharge of certain hormone, priming the animal for fighting or fleeing. This response is recognized as the first stage of a general adaptation syndrome that regulates stress responses among vertebrates and other organisms.

Explain the regulation mechanism carried out by the body in this situation.

Analisis [8 markah]



Rajah 6.2
Diagram 6.2

[8marks]

Answer scheme for Question 6 (essay)

No	Sec.	Accepted points / description / explanation	M 1	M Sum
6	(a)(i)	<ul style="list-style-type: none"> Auxin concentration on the dark side (of the shoot) is higher than that on the lighted side // Auxin accumulate on the side (of the shoot) away from the light. Therefore the rate of growth on the lighted side is lower than that of the dark side. Thus the shoot bends towards the light. <p style="text-align: right;">Any 2</p>	1 1 1	2
	(a)(ii)	<ul style="list-style-type: none"> 10^{-6}mgdm^{-3} to 10^{-3}mgdm^{-3}. The growth of the root is retarded. In the root, high concentration of auxin retards growth Therefore the cells on the lower part of the root grows slower and the root bends downwards. 	1 1 1 1	4
	(b)	<ul style="list-style-type: none"> Kamariah's grandfather is suffering from Parkinson's disease, a disease that involves the degeneration of the nervous system and controls the movement and body balance of a person This is due to the lack of a chemical substance called dopamine (that controls the transmission of impulses from one neurone to another). In order to treat this problem, the patient can be given vitamin supplements such as B complex / C / E, carotenoid, and ginseng to replace the degenerative neurones and increase the transmission of impulses. Light exercises such as brisk walking should be encouraged to increase muscular coordination. The patient should always remain calm and should not be disturbed. Reading and writing should be encouraged to increase the mental ability. Kamariah's grandfather should be treated with care, patience and love. The family members should take care of him full time, otherwise a nurse should be employed to look after him. 	1 1 1 1 1 1 1 1 1 1	6
	(c)	<p>Able to explain the involvement of nervous system and endocrine system in the situation.</p> <p>Sample answer:</p>		8

	<ul style="list-style-type: none"> • The receptors / eyes detect stimulus • Sent nerve impulse to brain • Integration and interpretation of information • Sent nerve impulse to adrenal gland • Secretes adrenalin • Transported by blood (to liver, lungs and heart) 	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	
	<p>(In the liver,) glycogen converted into glucose</p> <ul style="list-style-type: none"> • Increase breathing rate • Increase ventilation rate // gaseous exchange in the lungs • Increase heartbeats • More blood / glucose / oxygen (in skeletal muscles) • More cellular respiration • More energy released • For muscles contraction // To respond / fight back / run away. 	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	
	<p>(Any 8)</p>		