

1.1 Sistem Saraf Manusia
Human Nervous System

1 (a) Padankan situasi di bawah dengan jenis gerak balas yang betul. **TP2 BT ms. 6-8**
Match the situations below with the correct response.

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Tindakan terkawal
Voluntary action



Tindakan luar kawal
Involuntary action

[2 markah / marks]

(b) Maklumat di bawah menunjukkan dua urutan aliran impuls.

ARAS R

Tulis 'Tindakan terkawal' dan 'Tindakan luar kawal' pada ruang yang disediakan. **TP1 BT ms. 6-8**
The information below shows two pathways of impulses.
Write 'Voluntary action' and 'Involuntary action' in the spaces provided.

(i) Rangsangan → Afektor → Saraf tunjang → Efektor → Gerak balas
Stimulus → Affector → Spinal cord → Effector → Response

Jenis tindakan / Type of action: _____

(ii) Rangsangan → Afektor → Otak → Efektor → Gerak balas
Stimulus → Affector → Brain → Effector → Response

Jenis tindakan / Type of action: _____

[2 markah / marks]

1.2 Rangsangan dan Gerak Balas dalam Manusia
Stimuli and Responses in Humans

2 (a) Rajah 1.1 menunjukkan huruf A yang berada di hadapan keratan rentas mata. **BT ms. 18**
Diagram 1.1 shows the letter A in front of the cross-section of eye.

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Pada rajah yang sama, lukis dua garisan sinar cahaya dari huruf A ke dalam mata untuk menunjukkan mekanisme penglihatan. **TP2**
On the same diagram, draw two light rays from the letter A into the eye to show the mechanism of sight.

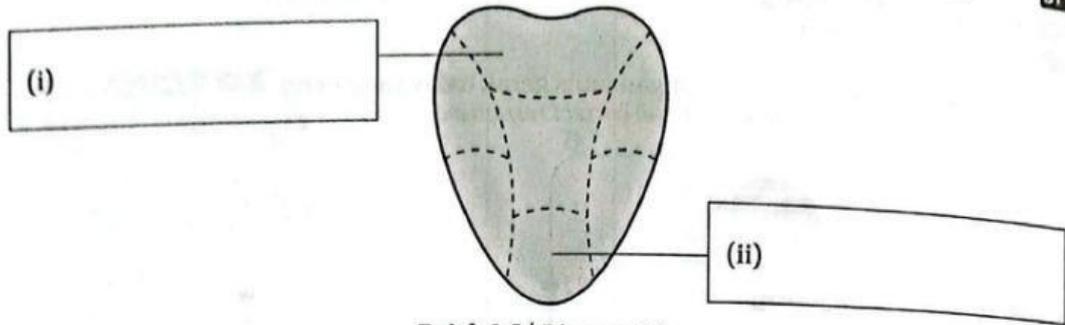
A



Rajah 1.1/ Diagram 1.1

[2 markah / marks]

(b) Rajah 1.2 menunjukkan kawasan berbeza pada lidah manusia yang peka terhadap rasa berbeza. **BT ms. 22**
 Diagram 1.2 shows different areas on the human tongue that are sensitive to different tastes.



Rajah 1.2/ Diagram 1.2

Tulis jenis makanan yang dapat dikesan oleh kawasan-kawasan yang ditanda dalam Rajah 1.2. **TP1**
 Write the types of food that can be detected by the areas marked in Diagram 1.2.

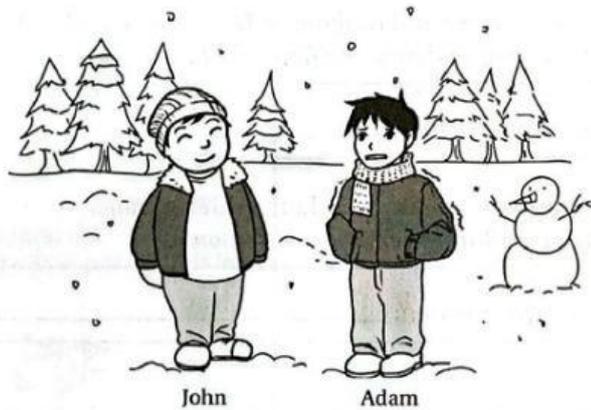
Jus lemon Lemon juice	Madu Honey	Garam Salt	Jus peria Bitter gourd juice
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[2 markah / marks]

Bahagian C / Section C

1.2 Rangsangan dan Gerak Balas dalam Manusia
 Stimuli and Responses in Humans

3 Rajah 2.1 menunjukkan John dan Adam sedang bersiar-siar ketika musim sejuk. Walaupun mereka berdua memakai jaket tebal, tetapi Adam berasa lebih sejuk daripada John. **BT ms. 16**
 Diagram 2.1 shows John and Adam walking around during the winter. Even though both of them were wearing thick jackets, Adam felt colder than John.



Rajah 2.1/ Diagram 2.1

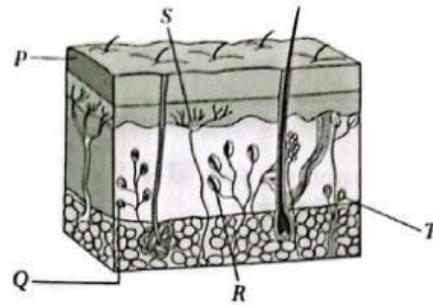
(a) Nyatakan dua sebab mengapa Adam berasa lebih sejuk daripada John. **TP4 KBAT Menganalisis**
 State two reasons why Adam felt colder than John.

1. Adam has _____ epidermis layer compared to John
2. Adam's fat layer is _____ than John.

[2 markah / marks]

- (b) Rajah 2.2 menunjukkan keratan rentas kulit Adam.
 Diagram 2.2 shows the cross-section of Adam's skin.

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Rajah 2.2/ Diagram 2.2

Bulatkan reseptor yang mengesan rangsangan yang sedang dirasainya dalam Rajah 2.2. **TP1**
 Circle the receptor that can sense the stimulus he felt in Diagram 2.2.

[1 markah / mark]

- (c) Berdasarkan Rajah 2.2, namakan dua lapisan kulit yang mengandungi reseptor. **TP1**
 Based on Diagram 2.2, name two skin layers that contain receptors.

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[2 markah / marks]

- (d) Terangkan mekanisme yang berlaku selepas kulit mengesan rangsangan yang dirasai oleh Adam. **TP2**
 Explain the mechanism that occurs after the skin detects the stimulus felt by Adam.

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brain
 increase
 impulses

- nerve impulses are produced and sent to the brain to be interpreted
- next, the brain directs the body to produce a response
- increase energy and body metabolism

kinetic

shivering

[2 markah / marks]

- (e) Selain daripada lapisan kulit yang dinyatakan di 3(c), namakan satu lapisan kulit lain yang terdapat dalam Rajah 2.2. **TP2**
 Other than the skin layers mentioned in 3(c), name one other skin layer found in Diagram 2.2.

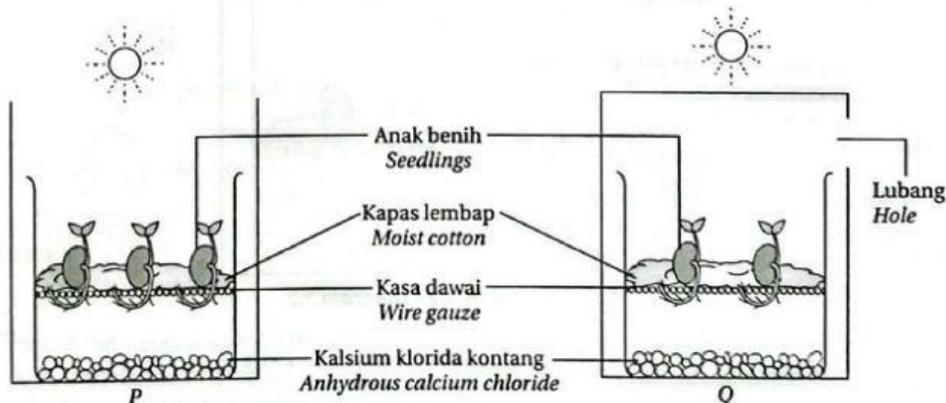
ARAS R

[1 markah / mark]

1.3

Rangsangan dan Gerak Balas dalam Tumbuhan Stimuli and Responses in Plants

- 4 Rajah 3.1 menunjukkan susunan radas yang telah disediakan untuk mengkaji gerak balas tumbuhan terhadap rangsangan yang berlangsung selama lima hari.
 Diagram 3.1 shows the apparatus set-up to study the response of plants towards stimuli in five days.



Rajah 3.1/ Diagram 3.1

(a) Nyatakan pemerhatian terhadap pucuk anak benih selepas lima hari. **TP2**
State the observation on the seedlings shoots after five days.

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- The seedlings in beaker _____ grow straight upwards, while the seedlings in beaker _____ bent towards the hole in the box.

[1 markah / mark]

(b) Berikan inferens bagi jawapan anda di 4(a). **TP2**
Give an inference for your answer in 4(a).

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R

- This is because the _____ of the seedling grow towards _____

[1 markah / mark]

(c) Berdasarkan eksperimen, nyatakan **TP2**
Based on the experiment, state the

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(i) pemboleh ubah dimanipulasikan/ *manipulated variable:*

(ii) pemboleh ubah bergerak balas/ *responding variable:*

[2 markah / marks]

(d) Nyatakan definisi secara operasi bagi fototropisme positif. **TP6 KBAT Mencipta**
State the operational definition of positive phototropism.

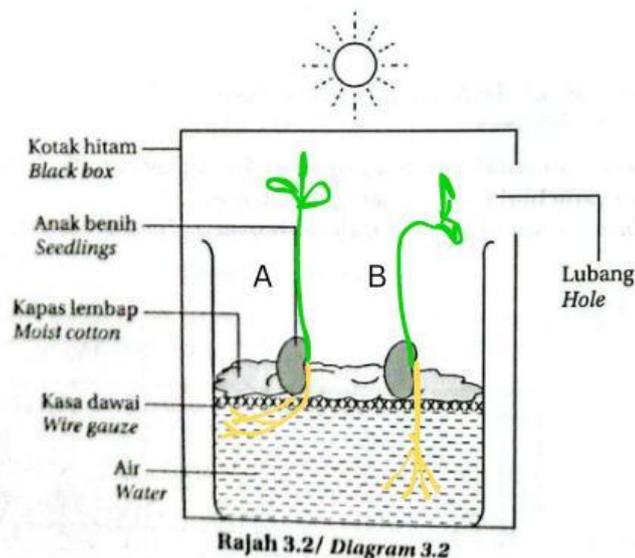
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- Positive phototropism is the growth of _____ of the seedlings towards the direction of _____

[2 markah / marks]

(e) Sekiranya kalsium klorida kontang digantikan dengan air, ramalkan pergerakan pucuk dan akar anak benih. Lukis ramalan anda dalam Rajah 3.2. **TP2**
If anhydrous calcium chloride is replaced with water, predict the movement of the shoots and roots of the seedling. Draw your prediction in Diagram 3.2.

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Rajah 3.2/ Diagram 3.2

[2 markah / marks]