

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.

(i)



Tindakan terkawal
Voluntary action

(ii)



Tindakan luar kawal
Involuntary action

[2 markah / marks]

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

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.

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.

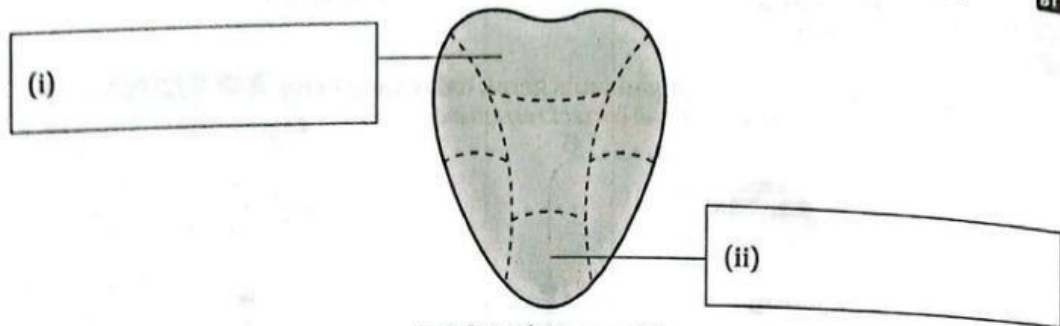
A



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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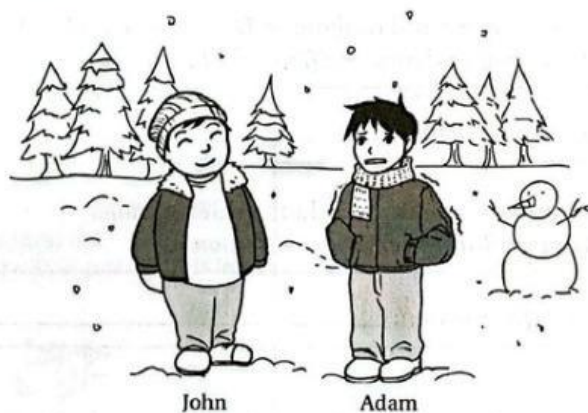
[2 markah / marks]

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

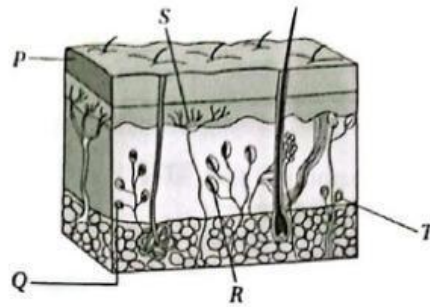
- (a) Nyatakan **dua** sebab mengapa Adam berasa lebih sejuk daripada John. **TP4 KBAT Menganalisis**
 State **two** reasons why Adam felt colder than John.

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.

ARAS
R



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.

ARAS
R

[2 markah / marks]

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

ARAS
R

brain

increase

impulses

- nerve are produced and sent to the to be interpreted
- next, the brain directs the body to produce response
- 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.

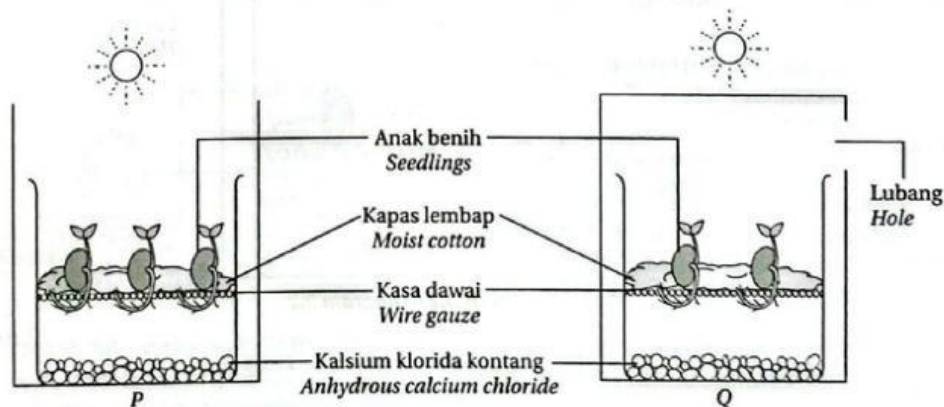
ARAS
R

[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.

- 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).

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

[1 markah / mark]

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

(i) pemboleh ubah dimanipulasikan/ manipulated variable:

(ii) pemboleh ubah bergerak balas/ responding variable:

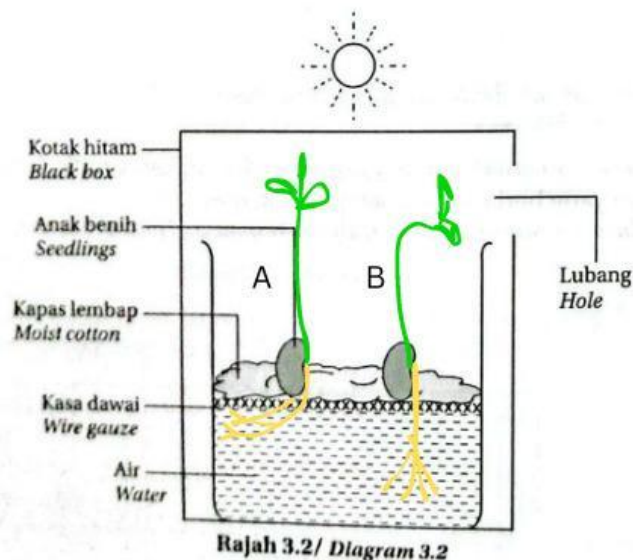
[2 markah / marks]

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

- 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.



[2 markah / marks]