

Objective Questions  
Soalan Objektif

- 1 Which of the following is the **correct** flow of information when a person accidentally cut his finger?

*Antara berikut, laluan maklumat yang manakah betul apabila seseorang terhiris jarinya tanpa sengaja?*

- A Afferent neurone → receptor → spinal cord → efferent neurone → effector  
*Neuron aferen → reseptor → saraf tunjang → neuron eferen → efektor*
- B Receptor → efferent neurone → spinal cord → afferent neurone → effector  
*Reseptor → neuron eferen → saraf tunjang → neuron aferen → efektor*
- C Efferent neurone → effector → spinal cord → afferent neurone → receptor  
*Neuron eferen → efektor → saraf tunjang → neuron aferen → efektor*
- D Receptor → afferent neurone → spinal cord → efferent neurone → effector  
*Reseptor → neuron aferen → saraf tunjang → neuron eferen → efektor*

- 2 What is the meaning of stimulus?

*Apakah maksud rangsangan?*

- A The ability to respond to any changes in the environment  
*Keupayaan untuk bergerak balas terhadap sebarang perubahan di persekitaran*
- B Changes in the environment that makes organisms react  
*Sebarang perubahan pada persekitaran yang membuatkan organisma bergerak balas*

- C The movement of body towards any changes

*Pergerakan badan terhadap sebarang perubahan*

- D The system that receives information from receptor

*Suatu sistem yang menerima maklumat daripada reseptor*

- 3 Which of the following is **correctly** matched?

*Antara berikut, manakah padanan yang tepat?*

|   | Sensory receptor<br><i>Reseptor deria</i> | Function<br><i>Fungsi</i>  |
|---|---|--|
| A | Chemoreceptor<br><i>Kemoreseptor</i>      | Detects biological substances<br><i>Mengesan bahan biologi</i>               |
| B | Mechanoreceptor<br><i>Mekanoreseptor</i>  | Detects changes in temperature<br><i>Mengesan perubahan suhu</i>             |
| C | Photoreceptor<br><i>Fotoreseptor</i>      | Detects presence of light<br><i>Mengesan kehadiran cahaya</i>                |
| D | Thermoreceptor<br><i>Termoreseptor</i>    | Detects changes in blood pressure<br><i>Mengesan perubahan tekanan darah</i> |

**Structured Questions**  
**Soalan Struktur**

1 Give a definition of the following words.  
*Berikan definisi bagi perkataan-perkataan berikut.*

(a) Coordination  
*Koordinasi*

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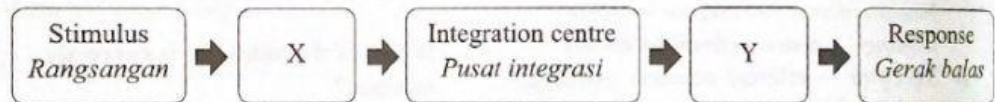
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(b) Stimulus  
*Rangsangan*

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2 Diagram below shows a flow chart that shows the pathway of nerve impulse.  
*Rajah di bawah menunjukkan carta alir yang menunjukkan aliran impuls saraf.*



(a) State the structures found in X and Y.  
*Nyatakan struktur pada X dan Y.*

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(b) Describe the functions of structures X and Y in the pathway above.  
*Huraikan mengenai fungsi struktur X dan Y dalam aliran di atas.*

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(c) What are the examples of external and internal stimuli?  
*Apakah contoh bagi rangsangan luar dan rangsangan dalam?*

(i) External stimuli :  
*Rangsangan luar*

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(ii) Internal stimuli:  
*Rangsangan dalam*

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- 3 Match the type of sensory receptor with its correct description.  
 Padan setiap reseptor deria dengan huraian yang betul.

|                                       |  |     |
|---------------------------------------|--|-----|
| (a) Mechanoreceptor<br>Mekanoreseptor | Stimulated by light energy<br>Dirangsang oleh tenaga cahaya  | (J) |
| (b) Baroreceptor<br>Baroreseptor      | Stimulated by changes in temperature<br>Dirangsang oleh perubahan suhu                             | (K) |
| (c) Photoreceptor<br>Fotoreseptor     | Stimulated by changes in chemical concentration<br>Dirangsang oleh perubahan kepekatan bahan kimia | (L) |
| (d) Thermoreceptor<br>Termoreseptor   | Stimulated by changes in blood pressure<br>Dirangsang oleh perubahan tekanan darah                 | (M) |
| (e) Chemoreceptor<br>Kemoreseptor     | Stimulated by changes in pressure<br>Dirangsang oleh perubahan pada tekanan                        | (N) |

- 4 Fill in the correct stimulus and response.  
 Isikan dengan rangsangan dan gerak balas yang betul.

| Situation<br>Situasi  | Stimulus<br>Rangsangan | Response<br>Gerak balas |
|---|------------------------|-------------------------|
| Hearing a door bell<br>Mendengar loceng pintu   |                        |                         |
| Body temperature rises due to an infection<br>Suhu badan meningkat disebabkan jangkitan |                        |                         |

- 5 List the importance of responding to stimuli for living organisms.  
 Senaraikan kepentingan bergerak balas terhadap rangsangan bagi organisma hidup.

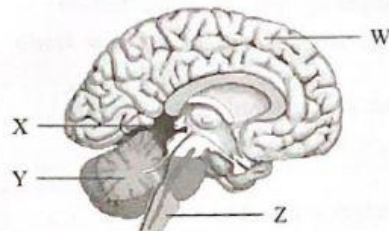
- (a) \_\_\_\_\_  
 (b) \_\_\_\_\_  
 (c) \_\_\_\_\_  
 (d) \_\_\_\_\_

## Objective Questions

## Soalan Objektif

- 1 Diagram below shows a section of the human brain.

Rajah di bawah menunjukkan keratan otak manusia.



Which of the labelled parts control the body movement and control the blood pressure?

Bahagian berlabel yang manakah mengawal pergerakan badan dan mengawal tekanan darah?

|   | Control of body movement<br><i>Mengawal pergerakan badan</i> | Control of blood pressure<br><i>Mengawal tekanan darah</i> |
|---|--|--|
| A | W  | Y  |
| B | X  | W  |
| C | Z  | X  |
| D | Y  | Z  |

- 2 A student raised her hand and answered the question asked by the teacher in class. Which part of the brain controls the student's response?

Seorang pelajar mengangkat tangan dan menjawab soalan yang ditanya oleh guru di dalam kelas. Bahagian otak yang manakah mengawal gerak balas pelajar tersebut?

- A Cerebrum  
*Serebrum*  
B Cerebellum  
*Serebelum*

- C Spinal cord  
*Saraf tunjang*  
D Medulla oblongata  
*Medula oblongata*

- 3 A man was involved in a road accident. The accident caused injury to his brain and affected his ability to speak. Which part of his brain is affected?

Seorang lelaki mengalami kemalangan jalanraya. Kemalangan itu menyebabkan kecederaan kepada otak dan menjejaskan kebolehannya untuk bertutur. Bahagian otak yang manakah tercedera?

- A Cerebrum  
*Serebrum*  
B Thalamus  
*Talamus*  
C Cerebellum  
*Serebelum*  
D Spinal cord  
*Saraf tunjang*

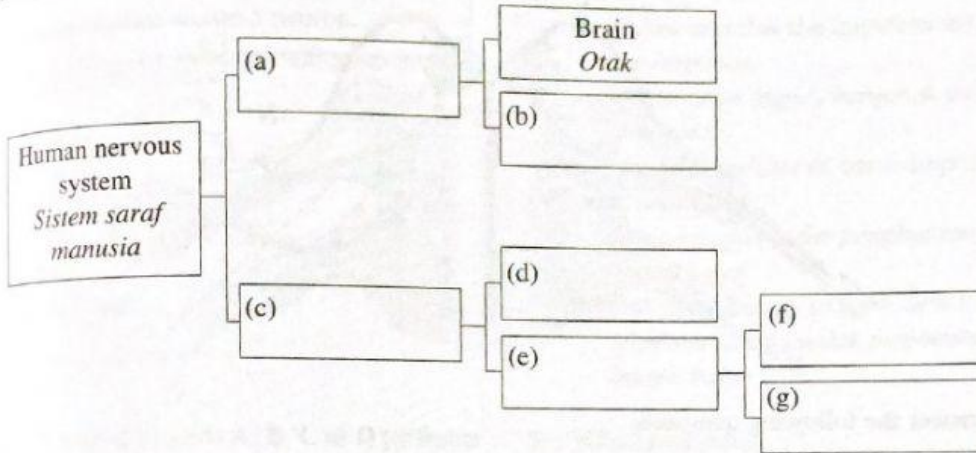
- 4 What are the components of the autonomic nervous system?

Apakah komponen-komponen dalam sistem saraf autonomi?

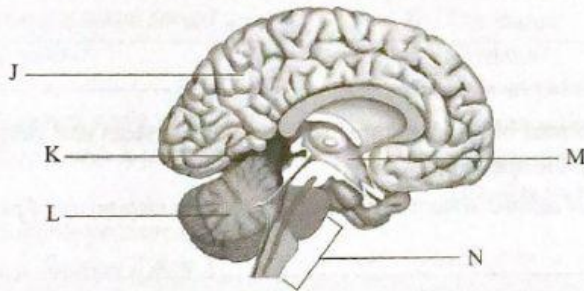
- A Peripheral and somatic nervous systems  
*Sistem saraf periferi dan sistem saraf soma*  
B Central and peripheral nervous systems  
*Sistem saraf pusat dan sistem saraf periferi*  
C Somatic and sympathetic nervous systems  
*Sistem saraf soma dan sistem saraf simpatetik*  
D Sympathetic and parasympathetic nervous systems  
*Sistem saraf simpatetik dan sistem saraf parasimpatetik*

**Structured Questions**  
**Soalan Struktur**

- 1 Complete the organisation chart of the nervous system.  
*Lengkapkan carta organisasi bagi sistem saraf.*

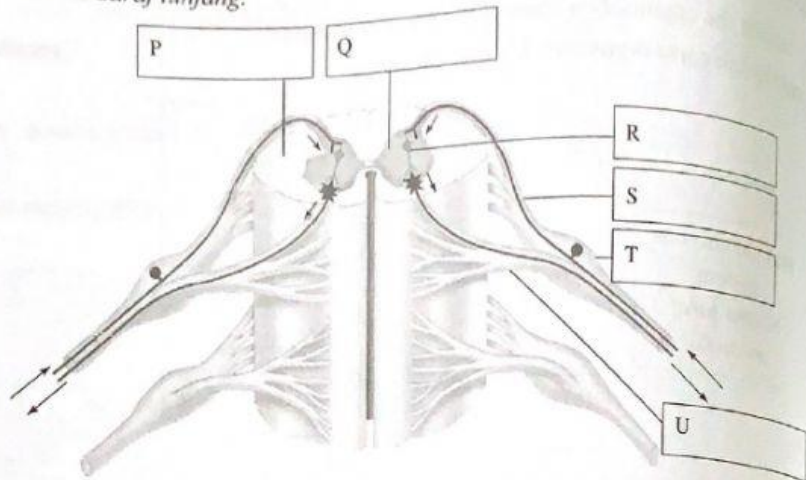


- 2 Name and state the main functions of each part of the human brain below.  
*Nama dan nyatakan fungsi utama bagi setiap bahagian dalam otak manusia di bawah.*



|   | Part of brain<br><i>Bahagian otak</i> | Function<br><i>Fungsi</i> |
|---|---------------------------------------|---------------------------|
| J |                                       |                           |
| K |                                       |                           |
| L |                                       |                           |
| M |                                       |                           |
| N |                                       |                           |

- 3 Label the structure of spinal cord.  
 Labelkan struktur saraf tunjang.



- 4 Answer the following questions.  
 Jawab soalan-soalan berikut.

- (a) State the main function of autonomic nervous system.  
 Nyatakan fungsi utama sistem saraf autonomi.

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- (b) Compare the functions between sympathetic nervous system and parasympathetic nervous system in the space below.  
 Bandingkan fungsi antara sistem saraf simpatetik dan sistem saraf parasimpatetik dalam ruang di bawah.

| Sympathetic nervous system<br><i>Sistem saraf simpatetik</i> | Parasympathetic nervous system<br><i>Sistem saraf parasimpatetik</i> |
|--|--|
|  |  |
|  |  |

- (c) The parasympathetic nervous system is referred to as the "rest and digest" response. Explain this statement.  
 Sistem saraf parasimpatetik dirujuk sebagai gerak balas "rehat dan cerna". Terangkan pernyataan ini.

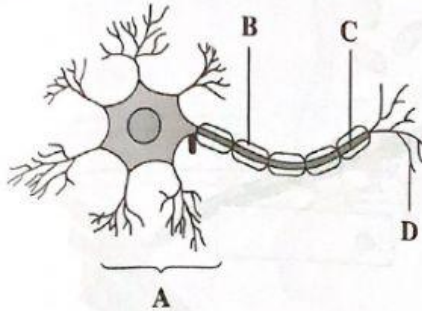
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Objective Questions  
Soalan Objektif

- 1 Diagram below shows a neuron.  
Rajah di bawah menunjukkan suatu neuron.

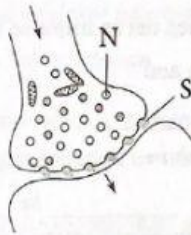


Which labelled parts A, B, C or D performs basic cellular function, such as protein synthesis?

Antara bahagian berlabel A, B, C dan D, yang manakah menjalankan fungsi asas sel seperti sintesis protein?

- 2 Diagram below shows a synapse in axon terminal. Question 2 and 3 are based on this diagram.

Rajah di bawah menunjukkan sinaps di terminal akson. Soalan 2 dan 3 berpandukan rajah tersebut.



What is the function of substance N?

Apakah fungsi bahan N?

- A Releases the neurotransmitter  
Membebaskan neurotransmitter

B Makes sure that the impulses move in one direction

Memastikan impuls bergerak dalam satu hala

C Increases the rate of nerve impulse transmission

Mempercepat kadar penghantaran impuls saraf

D Generates energy to form new impulse

Menjana tenaga untuk pembentukan impuls baharu

- 3 What is substance S?

Apakah bahan S?

A Adrenaline

Adrenalina

B Thyroxine

Tiroksina

C Noradrenaline

Noradrenalina

D Mitochondria

Mitochondria

- 4 Which term is used to describe the space between a neuron and its target cell?

Apakah perkataan yang digunakan untuk menjelaskan ruang di antara neuron dan sel sasaran?

A Axon terminal

Terminal akson

B Synaptic cleft

Ruang sinaps

C Synaptic knob

Bonggol sinaps

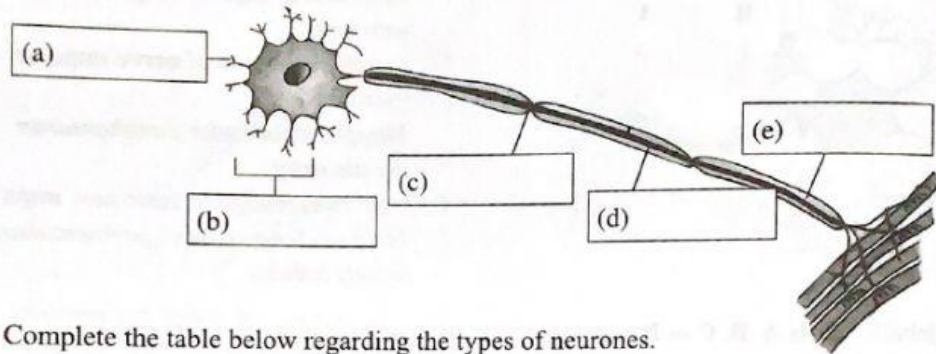
D Nodes of Ranvier

Nodus Ranvier

**Structured Questions**  
**Soalan Struktur**

- 1 The brain and nervous system are made of billions of nerve cells called neurons.  
*Otak dan sistem saraf terdiri daripada berbilion-bilion sel saraf yang dikenali sebagai neuron.*

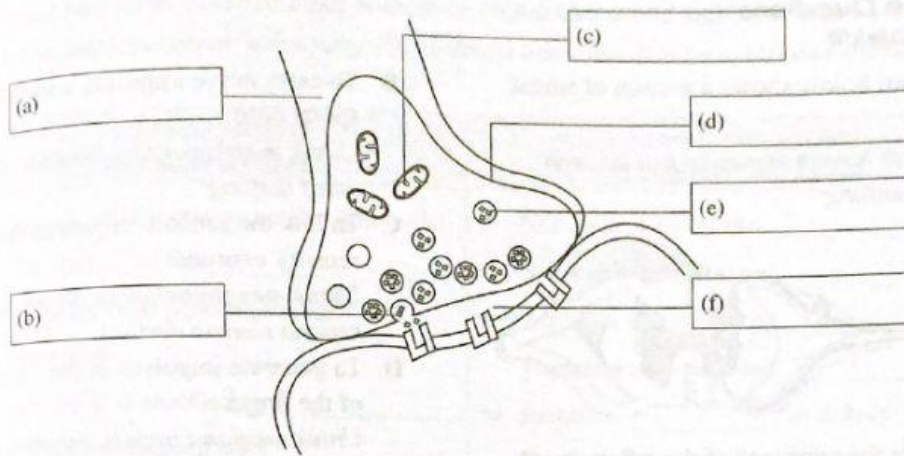
Label the parts in the neuron below.  
*Labelkan bahagian pada neuron di bawah.*



- 2 Complete the table below regarding the types of neurones.  
*Lengkapkan jadual di bawah mengenai jenis-jenis neuron.*

| Types of neurone<br><i>Jenis neuron</i>                                  | Diagrams<br><i>Rajah</i> | Functions<br><i>Fungsi</i>  |
|--|--------------------------|---|
| (a) Sensory or afferent neuron<br><i>Neuron deria atau neuron aferen</i> |                          | Carries nerve impulses from the _____ to the _____ and spinal cord.<br><i>Membawa impuls saraf dari _____ ke _____ dan saraf tunjang.</i> |
| (b) Motor or efferent neuron<br><i>Neuron motor atau neuron eferen</i>   |                          | Carries nerve impulse from the brain and _____ to the _____.<br><i>Membawa impuls saraf dari otak dan _____ ke _____.</i>                 |
| (c) Interneurone<br><i>Interneuron</i>                                   |                          | Carries nerve impulses from an _____ neuron to an _____ neuron.<br><i>Membawa impuls saraf dari neuron _____ ke neuron _____.</i>         |

3 Name each part of the synapse shown below.  
 Namakan setiap bahagian dalam sinaps yang ditunjukkan di bawah.



4 Discuss how the impulses are generated and move across the synapse based on the diagram above.

Bincangkan bagaimanakah impuls dijana dan bergerak merentasi sinaps berdasarkan rajah di atas.

(a) When the nerve impulse arrives at the \_\_\_\_\_, the \_\_\_\_\_ releases the \_\_\_\_\_ into the synapse.

Apabila saraf impuls tiba di \_\_\_\_\_, \_\_\_\_\_ akan membebaskan \_\_\_\_\_ ke dalam sinaps.

(b) The neurotransmitter molecules \_\_\_\_\_ across the synapse to the \_\_\_\_\_ of another neurone.

Molekul-molekul neurotransmitter \_\_\_\_\_ merentasi sinaps ke \_\_\_\_\_ neuron bersebelahan.

(c) The dendrite is stimulated to trigger a new nerve \_\_\_\_\_ which travels down along the \_\_\_\_\_.

Dendrit dirangsangkan untuk menghasilkan saraf \_\_\_\_\_ baharu yang bergerak di sepanjang \_\_\_\_\_.