UNIT ASSESSMENT

AQA
A Level Psychology
Unit Assessment

Biopsychology
(Edition

1 hour

The maximum mark for this unit assessment is 48 marks

Name

Centre Name
A Level Psychology Unit Assessment

Section A: Biopsychology

ANSWER ALL QUESTIONS IN THIS SECTION

01 Which of the following statements about the divisions of the nervous system is incorrect?

- A The nervous system is divided into the central nervous system and the peripheral nervous system.

- B The somatic nervous system is divided into the autonomic nervous system and the peripheral nervous system.

- C The autonomic nervous system is divided into the sympathetic nervous system and the parasympathetic nervous system.

- D The peripheral nervous system is divided into the autonomic nervous system and the somatic nervous system.

(1 mark)

02 Explain how split brain research has been conducted.

(4 marks)
Read the item below and answer the question that follows:

Mary is a nurse and often has to work a night shift. During the night, she gets really tired and finds it hard not to fall asleep. However, once she gets home she finds it very difficult to fall asleep as it is light outside and she can hear noises in the street.

Making reference to the information in the above item, discuss research into the effects of endogenous pacemakers and exogenous zeitgebers on the sleep/wake cycle.
Section A: Biopsychology

01 Which of the following statements about the divisions of the nervous system is incorrect? (1 mark)

Marks for this question: AO1 = 1

Answer: B

02 Explain how split brain research has been conducted. (4 marks)

Marks for this question: AO1 = 4

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Knowledge of how split brain research has been conducted is mostly accurate. The answer is generally coherent with effective use of terminology.</td>
<td>3–4 marks</td>
</tr>
<tr>
<td>1</td>
<td>Knowledge of how split brain research has been conducted is evident. The answer lacks accuracy and detail. Use of terminology is either absent or inappropriate.</td>
<td>1–2 marks</td>
</tr>
<tr>
<td></td>
<td>No relevant content.</td>
<td>0</td>
</tr>
</tbody>
</table>

Possible content:

- The research was conducted to investigate lateralisation of function with 11 patients who had their corpus callosum (which joins the two hemispheres of the brain) severed. This was done to treat their severe epilepsy.
- A number of tasks were carried out in laboratory conditions using specialised equipment.
- The visual tasks involved participants having one of their eyes covered and then having information presented to either the right or the left visual field for less than a tenth of a second. The participant was then asked what they had seen.
- The tactile tasks involved an object being placed into one of the participant’s hand (so they could not see it). They were then either asked to name it or asked to select a similar object from a series of alternative objects.

As the question asks ‘how’ split brain research has been conducted the focus of the answer needs to be on the procedures of the research and marks cannot be awarded for descriptions of findings or conclusions.

Credit other relevant material.
When it begins to go dark the SCN signals the pineal gland, leading to an increase in the production of melatonin helping to induce sleep.

Melanopsin is a protein in the eye which is sensitive to light and carries signals to the SCN to set the 24-hour cycle.

Possible application:
- People like Mary who work shifts often feel sleepy at work and suffer from insomnia at home because their work schedule (exogenous zeitgeber) is at odds with their circadian sleep/wake cycle. This is because it is governed by endogenous pacemakers which are powerful biological factors.
- During the night when she is working her night shift Mary’s SCN will receive information from the optic nerve about the reduction in light outside. This will signal her pineal gland to produce melatonin, making her feel sleepy.
- During the day when she is trying to get to sleep, the exogenous zeitgebers such as the light levels outside, the noises outside and any other social cues will synchronise her sleep/wake cycle with the outside world. This is why she finds it very difficult to sleep.

Possible discussion:
- Evidence to support the importance of the SCN. For example, Morgan (1955) who bred hamsters with an abnormal circadian rhythm of 20 hours found that when SCN neurons from these hamsters were transplanted into normal hamsters they then displayed the same abnormal rhythm.
- Evidence to support the role of melanopsin. For example, Skene and Arendt (2007) claim that blind people without any light perception show abnormal circadian rhythms.
- The case study of Siffre (1975) supports the role of EZs as when he was in the cave his 24 hour sleep/wake cycle was increased slightly by the lack of external cues. When he came out he thought the date was a month earlier than it really was.

Credit other relevant material.

Assessment Objective Grid

<table>
<thead>
<tr>
<th>Question number</th>
<th>AO1</th>
<th>AO2</th>
<th>AO3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>3 (RM)</td>
<td>3</td>
</tr>
<tr>
<td>4.1</td>
<td></td>
<td>6</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>4.2</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>4</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>4</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>10</td>
<td>17</td>
<td>48</td>
</tr>
</tbody>
</table>