**VCE Psychology Unit 3**

**Written Examination**

**Suggested Solutions**

### SECTION A: MULTIPLE-CHOICE QUESTIONS

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>2</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>4</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>5</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>6</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>7</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>8</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>9</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>10</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>11</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>12</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>13</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>14</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>15</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>16</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>17</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>18</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>19</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>20</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>21</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>22</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>23</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>24</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>25</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>26</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>27</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>28</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>29</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>30</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>31</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>32</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>33</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>34</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>35</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>36</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>37</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>38</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>39</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>40</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>41</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>42</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>43</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>44</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>45</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>
Question 1  C
According to James, consciousness is ever changing, selective, continuous and personal.

Question 2  D
While meditating, Zahara increases her pain threshold thus reducing the impact of pain on herself.

Question 3  B
Miley would most likely experience REM rebound due to the absence of REM sleep during the previous two days and thus obtain as much as double the usual amount for an adult.

Question 4  D
Many elderly people experience minimal, if any, slow wave sleep (stages 3 and 4 NREM sleep) theoretically due to the slowing of the nervous system (amongst other reasons).

Question 5  B
Body temperature only varies by approximately 0.9 degrees over a 24 hour period and is generally lowest during deep sleep, i.e. slow wave sleep (stages 3 and 4 NREM).

Question 6  A
Sleep laboratories use a variety of devices to obtain physiological measures such as an EEG to detect, amplify and record electrical activity of the brain during sleep including brain waves signifying REM sleep (high frequency, low amplitude, beta brain waves).

Question 7  B
Synaesthesia is a neurologically based condition in which stimulation of one sensory or cognitive pathway leads to automatic, involuntary experiences in a second sensory or cognitive pathway.

Question 8  C
The motion after-effect (MAE) is a visual illusion experienced after viewing a moving visual stimulus for a period of time (seconds to minutes) with stationary eyes, and then fixating a stationary stimulus. The stationary stimulus appears to move in the opposite direction to the original (physically moving) stimulus.

Question 9  B
Broca’s area is responsible for speech production but it also plays a role in analysis of grammatical structure of those who we hear speak.

Question 10  D
A hypnic jerk is commonly experienced as a result of our muscles relaxing as we drift into an altered state of consciousness (sleep).

Question 11  C
Whether the subjects had slept prior to testing was the variable manipulated, i.e. immediately after the lecture or the next day (after a night’s sleep).
Question 12  A
The variable measured was number of Accounting concepts recalled.

Question 13  A
Convenience sampling has been used as the researcher has not attempted to make the sample representative of the population, by simply using first year commerce (Accounting) students.

Question 14  C
The hypothesis contains
1. Dependent variable: recall of Accounting concepts
2. Independent variable: testing after sleep or immediately after the lecture
3. Population of interest (first year commerce students)
4. Prediction (higher recall after sleep)

Question 15  A
The mode is the most frequently occurring value (a measure of central tendency).

Question 16  C
The *p*-value obtained indicated that the observed differences in recall of Accounting concepts was insignificant, i.e. there a 5% or more chance that the differences were due to chance.

Question 17  D
Subjects can withdraw during the experiment as well as having the option to withdraw their results at the conclusion of the experiment.

Question 18  D
Once a sample has been obtained, subjects are allocated to either the control or experimental group.

Question 19  D
Confounding variables are variables other than the independent variable that affect the dependent variable systematically throughout the experiment.

Question 20  B
A matched pairs experiment would reduce the impact of participant related variables, by matching subjects on prior knowledge of Accounting concepts, age, gender, etc.

Question 21  B
The Atkinson–Shiffrin model of memory consists of three stages; sensory memory, short-term memory and long-term memory.

Question 22  C
Completing short answer questions is an example of recall, i.e. use of minimal cues.
**Question 23**  
D  
The episodic buffer links information across domains to form integrated units of visual, spatial, and verbal information with time sequencing such as the memory of a TV show.

**Question 24**  
A  
According to the Ebbinghaus forgetting curve, approximately 80% of information is lost after 1 month (20% remembered).

**Question 25**  
B  
Information that is stored semantically, i.e. according to its meaning, involves deep processing thus is encoded more effectively.

**Question 26**  
D  
According to the semantic network theory, information is stored in a hierarchical format. In this case the node supermarket has been activated, this in turn has activated other nodes, i.e. shopping items such as fruit, vegetables, meat, etc.

**Question 27**  
B  
The basic skills involved in riding a bicycle (pedalling, posture, steering, etc.) require no conscious effort to bring the memory to mind as opposed to a declarative memory.

**Question 28**  
C  
According to the consolidation theory, a period of time (30 minutes minimum) is required to form a neuronal trace of incoming memory. If this process is interrupted, i.e. due to head trauma, then the memory will decay due to the absence of the physical memory trace.

**Question 29**  
B  
According to the decay theory, if declarative memories are not revisited over time, the memory trace will gradually fade.

**Question 30**  
A  
An acrostic is a mnemonic device used to enhance memory by constructing a phrase/sentence of the first letters of items to be remembered (FPOT in this case).

**Question 31**  
C  
Episodic memories due to the complex manner in which they are stored, tend to be most affected by age.

**Question 32**  
B  
There is generally a higher rate of retention of information if the environment in which the original learning takes place is similar to the environment where one is asked to recall the information, in this case the classroom was the site of the original learning, which could potentially provides cues for retrieval (during the exam).

**Question 33**  
B  
The Italian lecture has proactively interfered with the subsequent French lecture due to the similarity of material and the closeness in time of learning.
Question 34 B
The Italian lecture has been retroactively interfered with by the earlier French lecture.

Question 35 C
Iconic memory enables the viewer to maintain a visual image for approximately 0.3 seconds, long enough for individual images to overlap each other creating the impression of a continuous visual experience.

Question 36 B
Anterograde amnesia is caused by damage to the hippocampus as well as the medial temporal lobes – these areas of the brain are responsible for the consolidation of new memories.

Question 37 B
Albie has chained the words to be remembered into a story in order to enhance his memory of these five camping items.

Question 38 A
Our memory for events is susceptible to distortion from misleading questions. For example, a response to the question ‘what did you see?’ might be different to a response to the question ‘did you see the man take the woman’s handbag?’.

Question 39 D
According to Loftus, memory of events is not accurate but rather a reconstruction with new information from a variety of sources used to fill in the gaps.

Question 40 A
The hypothesis needs to have direction, i.e. as temperature increases (the independent variable) memory declines (dependent variable).

Question 41 B
Mean is a statistic that helps summarise and describe the data in terms of average number of terms recalled.

Question 42 D
The subjects need to be informed of their rights, any risks involved and the nature of the study. Some deception may be required in order to minimise participant expectancy providing the subjects are debriefed at the conclusion of the experiment.

Question 43 D
The sample of university students is not representative of the wider population, thus no valid generalisations can be made.

Question 44 A
The EEG does not measure arousal levels.
**Question 45 C**
The study manipulated the independent variable (temperature) to test the effect on the dependent variable (recall), to enable cause and effect inferences to be made.

**SECTION B – SHORT-ANSWER QUESTIONS**

**Question 1**

a. Impaired movement/sensation of left side of the body or difficulty judging distance between their left hand holding a frying pan and a stove, etc.  

b. *Any one of the following:*
   - difficulty processing information logically and sequentially
   - impaired mathematical ability/difficulty interpreting scientific data
   - difficulty planning/organising
   - impaired judgement of rhythm and time
   - loss of verbal function
   - impaired comprehension of others.

**Question 2**

*Any two of:*

- regulating arousal
- regulating sleep-wake transitions
- regulating levels of awareness, i.e. from normal wakefulness to selective attention

**Question 3**

a. pineal gland

b. The mind (non-physical) controls the body (physical).

**Question 4**

- Animals that have few predators, such as lions or gorillas, sleep considerably more than animals that have difficulty hiding (up a tree or in a burrow) from multiple predators, e.g. cows, buffalos (sleep as little as 4 hours per day).
- Smaller animals such as possums that are able to hide themselves from their predators, spend less time searching for food (the time they are most vulnerable) and more time sleeping (less vulnerable when hidden).

*1 mark for each of the above points*
Question 5
a. A microsleep can occur without warning after 3 to 4 days of total sleep deprivation or mental fatigue, depression, sleep apnoea, hypoxia, narcolepsy or hypersomnia. They last for a fraction of a second to 30 seconds. Microsleeps are signified by EEG readings that indicate lower frequency, higher amplitude alpha/theta-like brain waves resembling EEG readings of a light NREM sleep during which they are unable to process incoming stimuli. 1 mark
b. David will spend significantly more time in REM than during a normal sleep, e.g. 4 hours of REM instead of the normal 2 hours for an adult (REM rebound). 1 mark

Question 6
a. neurotransmitters 1 mark
b. amygdala 1 mark

Question 7
a. Delayed sleep-phase syndrome (DSPS) usually develops in adolescence or childhood. It is a circadian rhythm sleep disorder that affects the timing of sleep and peak period of alertness. People with DSPS generally fall asleep some hours after midnight and have difficulty waking up in the morning. 1 mark
b. Staying up late on the weekends (for social reasons mainly) and sleeping in (to recover sleep debt accrued both during the week and from late night on Friday and Saturday) which alters the circadian rhythm, resulting in Kobe having difficulty waking up on time for school on Monday morning. 1 mark

Question 8
Slow wave sleep is signified by a mixture of delta brain waves and theta brain waves – which includes
• high amplitude
• low frequency 2 marks
1 mark for any two of the above points

Question 9
Change blindness occurs when a person viewing a visual scene apparently fails to detect large changes in the scene, thus causing a mismatch between the viewer’s perception and the perceptual reality (perceptual anomaly). This can occur when there is a change or disruption in the scene typically such as brief obscuring of the observed scene or image. It can also occur when looking at stationary images, e.g. looking at a scoreboard at the cricket and not noticing the change in advertising logo. 2 marks
1 mark for the explanation of change blindness
1 mark for the explanation of perceptual anomaly
Question 10
Differences:

• A SPECT scan provides functional information by use of a radioisotope (tracer) injected into the bloodstream. The brain areas that require more oxygenated blood are assumed to be engaged in higher levels of activity.

• A CT only provides structural information by injecting the patient with iodine that will highlight the brain’s blood vessels to help the radiologist/researcher in interpreting CT images.

Similarity:

• Both involve the use of a radioactive substance and a scanner to record and generate a computerised image of the brain.

2 marks

1 mark for each explanation

Question 11

a. Declarative memory: memories of personal events and general knowledge which can be brought consciously to mind. 1 mark

b. Procedural memory: memory on how to perform a skill (procedures) which occurs after practice, without the need to bring the action consciously to mind. 1 mark

c. Examples

• Declarative memory – memory of winning your first sports trophy on the 24th of June 2010.

• Procedural memory – an experienced bike rider using brakes when a car cuts them off.

2 marks

Question 12

a. Repression involves the unconscious blocking of painful memories from conscious awareness. 1 mark

b. Suppression involves the conscious blocking of painful memories from conscious awareness. 1 mark

Question 13

• Zach may develop spatial neglect as a result from brain injury to the right parietal lobe which can cause visual neglect of the left-hand side of space.

• Zach may have inhibited sensation of external stimuli from either side of the body if the somatosensory cortex has been damaged.

• Zach may have inhibited spatial awareness, i.e. he might bump into objects when walking through a building (due to damage to right parietal lobe).

• Zach may have impaired spatial skills, e.g. map reading. 2 marks

1 mark for any two of the above explanations
Question 14
a. Split-brain participants
   • would be unable to verbally identify the object because;
   • the visual information would be processed in the right (non-verbal hemisphere) and could not be
     transferred to the left (verbal) hemisphere due to the severing of the corpus callosum.
   • The participant could draw the object with their left hand or point to it with their left hand.

2 marks
1 mark for any two of the above explanations

b. The participants with intact corpus callosums could name (verbalise) the object (participant could also
   draw/point to it with right hand).
   This is due to the information being processed in the right hemisphere, then being transferred to the
   left (verbal) hemisphere via the corpus callosum.

1 mark

1 mark

c. double-blind procedure

1 mark

Question 15
Sensory receptors gather information from around the body (e.g. skin). The sensory (nerves) receptors then
transmit this information to the spinal cord (CNS) which is then conveyed to the brain for further processing.

1 mark

SECTION C – EXTENDED RESPONSE QUESTION

Question 16
• A normal waking consciousness is a state that is organised, clear and meaningful in terms of quality
  and intensity of sensations, feelings, thoughts, memories and perceptions.
• An altered state of consciousness is a state of consciousness which is distinctly different in level of
  awareness and experience from NWC in terms of quality and intensity of sensations, feelings,
  thoughts, memories and perceptions.

1 mark for each of the above points

For any four of the following:
• Content limitations: An impaired ability to use selective attention, e.g. completing a crossword.
• Controlled process: An impaired ability to complete tasks requiring a high degree of
  conscious awareness.
• Perceptual and cognitive distortions: Dulled perceptions (e.g. pain threshold), impaired ability to think
  clearly, store memories, make sound decisions.
• Emotional awareness: Emotions may be unconnected, e.g. reaction to bad news may be inappropriate.
• Self control: Reduced, e.g. aggression, sense of self may be distorted.
• Time orientation: Misperceived (faster or slower).

1 mark for identifying a point (maximum 4 points)
1 mark for describing a point (maximum 4 points)

10 marks