



2010

Psychology GA 1: Written examination 1

GENERAL COMMENTS

Performance on the June 2010 Psychology examination was reasonably consistent across the three Areas of Study. The scores in the multiple-choice section were higher than those in the short answer section.

In the multiple-choice section all three areas were answered adequately, with mean performance for 'Brain and nervous system' (70 per cent) being the lowest. 'Visual perception' had a mean score of 75.5 per cent and 'States of consciousness' had a mean score of 78 per cent.

As in previous years, some responses to the short answer section lacked precision and completeness in descriptions and definitions, failed to refer to appropriate psychological information or failed to provide appropriate examples in answers (even when the requirement for this was explicitly stated in the question). Students performed best in 'Visual perception' (64 per cent mean), with 'Brain and nervous system' and 'States of consciousness' each having means of 50 per cent.

Teachers had clearly directed students' attention to key concepts and skills in the *VCE Psychology Study Design*. As in previous years, students generally demonstrated good knowledge and understanding of the curriculum. However, as in previous years, it was noted that in many of the questions where a specific context was stipulated, students ignored the instruction and gave generic answers. Many students failed to address all aspects of the questions in their answers; this was particularly true in Question 4 where the context was ignored and in Question 7 where students did not refer to the figures drawn in the examination. Many answers contained only generic descriptions.

Students need to read the short answer questions very carefully and check their answers against the question requirements. Highlighting the **command terms** before planning a response is good practice.

It is worth noting that the space provided for an answer should be regarded as a guideline as to how much a student should write.

SPECIFIC INFORMATION

Section A – Multiple-choice questions

Students are reminded that they should answer all questions in the multiple-choice section of the paper. It is not possible to achieve a mark where no response is given. If students do not give a response, the likelihood that further answers on the computer-scored sheet will be out of synchronisation will be increased and students may miss out on further marks. If unsure, students are advised to mark the response that is the closest to their ideal choice for any question – it is always possible to change a response by carefully erasing and re-shading.

This section of the paper was moderately well answered with only two questions (11 and 20) resulting in a correct response rate of less than 50 per cent.

The table below indicates the percentage of students who chose each option. The correct answer is indicated by shading.

Question	% A	% B	% C	% D	Comments
Area of Study 1 – Brain and nervous system					
1	31	2	63	3	The 'frontal lobe' (option A) was incorrect as it does not contain 'almost three quarters of the brain's neurons' as stated in the question. Information is processed in all lobes.
2	77	1	1	21	The corpus callosum is not found in the cerebral cortex (option D).
3	38	1	58	3	Option A (occipital lobe of the left and right hemispheres) would be correct for images in the central visual field.

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Question	% A	% B	% C	% D	Comments
4	24	2	1	73	Option A was chosen by 24% of students. Mandy would certainly be able to give a laboured but meaningful description of the accident if the damage had been to Broca's area.
5	8	16	16	61	
6	5	5	7	83	
7	55	11	21	13	Option C was chosen by 21 per cent of students; however, the case study approach described was not an experimental design. Control and experimental groups are not relevant in this form of research.
8	77	14	6	3	
9	7	30	5	58	Option D (scratching your head) was the correct alternative as it referred to voluntary muscle movement.
10	7	12	8	74	
11	7	23	36	34	This question was poorly answered. Option A (The ANS is a vital part of the central nervous system [CNS]) can be eliminated as the ANS is not part of the CNS. Option B (It is impossible to consciously influence the functioning of the ANS) was incorrect because biofeedback depends upon conscious control of autonomic functions. Option D (the ANS relays messages between the CNS and the voluntary muscles that control our internal organs and glands) was a flawed statement as the ANS does not 'relay' messages. Its effect is on the visceral muscles; voluntary muscles do not control our internal organs and glands.
12	2	25	66	8	The sympathetic nervous system remains active as the parasympathetic nervous system works to establish homeostasis.
13	4	1	91	3	
14	1	1	5	93	
15	86	3	5	7	
16	4	6	88	1	
17	58	3	7	32	It is emphasised that a stressor can be identified because of the way an event is perceived by an individual, not by the physiological outcome of such an event.
18	1	33	3	63	Option B would have been unethical if the patient had become unwell and the researcher had continued and caused potential or real harm to the patient. This was not, however, the scenario described. The researcher has no control over the fact that the patient may become unwell.
Area of study 2 – Visual Perception					
19	18	24	50	9	
20	21	46	28	4	Visual sensation is part of the overall process of visual perception. The term refers to the physiological process that begins the perception process. There is no clear division between sensation and perception, but cognitive processing occurs only in the later stages of the perceptual process, indicating that option B was correct.
21	6	84	5	4	
22	63	9	18	9	Option C was a true statement but did not explain the difficulty experienced in the scenario.
23	3	9	11	77	
24	80	9	6	5	
25	17	6	67	11	It was surprising that 17 per cent of students chose option A, the false statement.
26	3	1	5	90	
27	7	4	88	1	
28	4	92	2	2	



Question	% A	% B	% C	% D	Comments
29	1	9	86	5	
30	83	8	6	2	
31	6	76	15	3	
Area of Study 3 – States of consciousness					
32	3	64	32	1	Option C was incorrect as ‘controlled consciousness’ is not a term used in this context. Students may have been thinking of controlled processes.
33	10	21	1	68	The full term for such a sudden awakening is a ‘hypnic jerk’, clearly identifying option D (a hypnogogic state) as the correct answer.
34	91	2	5	2	
35	8	85	4	2	
36	2	83	13	3	
37	2	33	4	61	Option B was chosen by 33 per cent of students. Graphs which show sleep cycles will clearly show that brief periods of intermediary NREM stages are experienced between Stage 4 NREM and the REM stage.
38	5	1	91	2	
39	0	3	93	3	
40	9	71	6	13	
41	81	3	7	8	
42	82	7	7	3	
43	7	5	77	10	
44	71	18	2	9	The choice of option B by 18 per cent of students was surprising, but serves to emphasise a point made many times in previous Assessment Reports. By definition, debriefing occurs after the research has been undertaken; it cannot occur before the research.

Section B – Short-answer questions

For each question, an outline answer (or answers) is provided. In some cases the answer given is not the only answer that could have been awarded marks.

Area of Study 1 – Brain and nervous system

This section was generally well answered.

Question 1

Marks	0	1	Average
%	26	74	0.8

Electrical activity of the brain (in the form of brain waves)

Students’ answers needed to include the term ‘electrical’.

Question 2

Marks	0	1	2	3	Average
%	26	22	25	27	1.6

Electrodes deliver an electrical current to precise areas of the brain (on the somatosensory cortex). The patient reports where they are feeling a tingling sensation. When they report a tingling sensation in the hand, the researcher can conclude that the part of the brain stimulated is responsible.

Many students referred to motor function; however, this was not an appropriate response to this question.

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Question 3

Marks	0	1	Average
%	17	83	

Any of:

- fMRI can be used on all patients (unless the patient has a pacemaker or other metallic device implanted), whereas ESB can only be used on patients already undergoing brain surgery
- a detailed picture/movie can be taken from fMRI, not from ESB
- fMRI is non-intrusive
- fMRI can be used on normally functioning brains, whereas ESB is normally conducted on abnormal brains, making it difficult to generalise results.

Question 4

Marks	0	1	2	Average
%	27	15	58	

A CT scan gives a clear image of the structure of the brain but not the function. A PET scan gives information about the functioning of different parts of the brain (but is less distinct in terms of structure). The doctor would need to measure both structure and function to ensure that the operation had been successful. (Both scans are useful for detecting brain abnormalities/cancers.)

Question 5a.

Marks	0	1	Average
%	65	35	

Resistance

'Catching the 'flu' is a new stressor. Tasha had been dealing with the original stressor and her headaches had gone away, this demonstrates that she was in the stage of resistance. Many students attempted an 'umbrella' response by stating 'resistance or exhaustion'; however, this was not acceptable.

Question 5b.

Marks	0	1	2	3	Average
%	21	27	32	20	

Stress hormones were released during the resistance stage to fight the stressor. Stress hormones (cortisol and adrenaline) remain at a high level for a long period of time because the stressor has not gone away. The strength of the immune system is reduced because it is fighting/it is suppressed by the stress hormones. This makes Tasha more susceptible to illnesses such as colds and flu which the immune system is less able to fight.

Question 5c.

Marks	0	1	Average
%	36	64	

Any of:

- anxiety
- depression
- nightmares
- increased emotionality
- anger/irritability/short-tempered
- hopelessness
- helplessness
- flat effect.

Students must be careful to distinguish between psychological and physiological characteristics.

Question 5d.

Marks	0	1	2	Average
%	59	33	8	

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The Sympathetic Nervous System (SNS) releases stress hormones as long as the stress is present. The SNS attempts to maintain high arousal throughout this stage.

Question 6

Marks	0	1	2	3	4	Average
%	25	39	20	10	6	1.3

The sensory receptors in the fingers of the (right) hand relay the sensation of the temperature of the glass of coffee through the spinal cord to the primary somatosensory cortex in the left parietal lobe. The decision that the coffee is too hot is made in the frontal lobe – association cortex. The information is transmitted to the primary motor cortex in the left frontal lobe which sends neural impulses to the skeletal muscles in her right hand and arm to put the hot coffee down.

Many students discussed reflex responses; however, the question specifically referred to the ‘role of the sensory receptors and the brain’. The process of replacing the cup on the table was not a part of the question as some students thought.

Area of Study 2 – Visual Perception

Question 7a.

Marks	0	1	2	Average
%	27	30	43	1.2

Proximity: Spatial proximity of elements causes us to group the four columns of dots into meaningful whole units (each with two columns of dots).

Figure-ground: The dark elements are perceived as the figure, standing out from the background (and separated from it by their contour or outline).

Similarity was not an appropriate Gestalt principle in this case. It was essential that reference was made to the stimulus diagram.

Question 7b.

Marks	0	1	2	Average
%	31	16	53	1.2

Gestalt principle: closure

Explanation: we perceive a large circle made up of smaller circles (despite the fact that the elements are not linked)

Similarity was an incorrect response. It was essential that reference was made to the stimulus diagram.

Question 8a.

Marks	0	1	2	Average
%	54	31	14	0.6

The true shape of the room is trapezoidal. Therefore, when the father moves from one corner to another he is actually moving further away from the viewer and casts a smaller retinal image on the viewer. Because the room appears rectangular, the viewer does not apply size constancy to take account of the father moving further away.

Reference to the given scenario was essential. Many students made reference to the witch moving or to both characters moving, contrary to the scenario presented.

Question 8b.

Marks	0	1	2	Average
%	41	47	12	0.7

The use of a camera restricts the viewer to monocular depth cues. Without binocular depth cues the viewer is unable to recognise that the room is not rectangular. The expression ‘the peephole ...’ was acceptable as the question stated that an ‘Ames Room’ was used.

Reference to the given scenario was essential.

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Question 9a.

Marks	0	1	Average
%	32	68	

Interposition: if one object partially obscures another object, the partially obscured object is perceived to be more distant from the viewer (giving an impression of depth).

Question 9b.

Marks	0	1	Average
%	38	62	

Linear perspective: lines that are parallel in the three-dimensional world (railway lines, the edges of a road, roof and floor lines of buildings) appear to become closer together as distance from the viewer increases (this is incorporated into the artwork to give the impression of depth).

Question 10a.

Marks	0	1	Average
%	10	90	

Absolute

Question 10b.

Marks	0	1	Average
%	17	83	

Differential or difference (JND was also accepted)

Question 10c.

Marks	0	1	2	Average
%	47	40	14	

Present the moving target at varying distances from the observer to determine the distance at which the observer can detect the target about 50 per cent of the time.

Question 11a.

Marks	0	1	2	Average
%	18	30	52	

Two of:

- memory disruptions or distortions
- perceptual and cognitive distortions
- change in emotional awareness
- altered perception of pain
- less or more self-control
- distorted sense of time
- decreased level of awareness
- less limitation on content.

Question 11b.

Marks	0	1	2	Average
%	39	24	37	

Two of:

- increased heart (pulse) rate
- increased body temperature
- increased GSR
- changes to brainwaves in EEG
- changes to muscle tone (increased/decreased electrical activity on EMG)
- increased respiration rate
- slower reaction time.

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Question 12a.

Marks	0	1	2	Average
%	13	59	29	1.2

Any of:

- EMG: low levels of electrical activity in the muscles of the body
- EEG: beta-like brainwaves – high frequency/low amplitude (saw-tooth patterns)
- EOG: high electrical activity in the muscles that move the eyes (muscles near the eyes), video monitor: no major body movement (some twitching), rapid eye movement.

The response needed to be relevant to Roman's REM sleep.

Question 12b.

Marks	0	1	Average
%	2	98	1

Any stage of NREM or REM sleep

Area of Study 3 – States of Consciousness

Students should be aware of elements that distinguish altered states of consciousness from normal waking consciousness.

Question 13a.

Marks	0	1	Average
%	63	37	0.4

Can be time-consuming (and expensive) to match participants on the variables. If one of the pair drops out, scores from the other must be discounted.

Question 13b.

Marks	0	1	2	Average
%	45	17	38	1

Participant characteristic: functional vision, coordination/sporting (catching) ability ('experience in ball sports' was accepted)

Explanation: to minimise participant differences as an extraneous variable

Students needed to refer to the variable identified in their answer to Question 13a.

Question 13c.

Marks	0	1	2	Average
%	14	61	25	1.1

He must give information regarding the nature of the study and/or risks and/or participants' rights. He must obtain consent from the parents.

Question 13d.

Marks	0	1	2	Average
%	16	39	46	1.3

Two of:

- difficulties with paying attention/concentrating
- difficulty thinking and reasoning, poor decision-making
- memory problems
- lack of motivation
- distorted perceptions (for example, time)
- increased/decreased emotionality or increased irritability.

'Long-term psychological effects' was not acceptable as there are no long-term psychological effects. 'Hallucinations' was not acceptable as these do not occur after only one night without sleep.