VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY

2007 Psychology GA 3: Written examination

GENERAL COMMENTS

Overall performance on the November 2007 paper was very comparable to November 2006. While the Multiple-choice responses showed an improvement, there were some weak responses in the short answer section.

As in 2005 and 2006, but in contrast to previous years, the 'Learning' section yielded the highest average score in the Short answer section (mean 52% correct), with 'Memory' (47%) and 'Research Methods' (48%) being very similar. In the Multiple-choice section, scores for Memory (73% correct) and 'Learning' (75%) were very similar and both slightly superior to the 2006 averages.

It is noted that in this examination a total of 450 lines were left blank on the students' multiple-choice answer sheets. This is half the number for November 2006 and indicates a positive trend. Students are strongly encouraged to respond to each question. Not only is it impossible to achieve a mark where no response is given, but also there is a possibility that later answers on the computer-scored sheet will be out of synchronisation and further marks may be lost. If unsure, students are again advised to mark the response that is their 'best guess' for any question. It is always possible to change a response later by carefully erasing and re-shading.

In the Short answer section, problems again arose in terms of failure to address **command terms** in questions, or failure to relate the answers to the scenario described in the question. Students appeared to have some difficulty interpreting questions and often did not gain marks due to a lack of precision in their responses. In each of the first two Areas of Study, the mean score on the Multiple-choice section was substantially superior to the mean score on the equivalent Short answer section.

Marking Issues

As in previous examinations, a two-mark question required two pieces of information; for example, Question 2 of Area of Study 1 and Questions 13 and 16 of Area of Study 3. One mark was given for each part and an answer that failed to address both parts did **not** achieve full marks. Most questions requiring two parts to an answer in this examination had two separate response spaces in the answer booklet.

This examination contained several questions in which students were required to answer **with respect to a certain theory**, **context** or **scenario**. This applied to Questions 1, 2, 4, 5, 6, 7 and 8b. in the first two Areas of Study. Similarly, all questions in Area of Study 3 needed to be answered with reference to the research study described, as stated in the instructions on the examination paper. Generic answers did not show a clear understanding of the question and could not gain full marks.

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SPECIFIC INFORMATION

Section A – Multiple-choice questions

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 – Memory					
1	18	2	2	78	
2	92	8	0	0	
3	83	8	3	6	
4	2	19	76	3	
5	6	2	28	64	Option C (visuo-spatial sketchpad) refers to working memory, not to sensory memory and so is incorrect. This distinction needs to be well understood.
6	11	76	3	10	
7	1	1	1	96	
8	24	11	65	1	Research published in 2007 indicates that full consolidation of episodic memory requires a phase of REM sleep. Therefore option A is incorrect.
9	0	2	1	97	
10	1	2	96	1	
11	22	2	2	74	
12	1	89	7	3	
13	6	43	48	2	This question required a response that showed the type of memory in which knowledge of the **rules** of a game would be stored. This can only be in declarative (semantic) memory. Knowledge of 'how' to play the game in terms of the **physical activity** would be in procedural memory. Those who chose option C failed to see this.
14	64	1	30	5	Students who chose option A showed a lack of understanding of the causes and the contributions of Primacy Effect and Recency Effect to the phenomenon of Serial Position Effect. After such a delay, no items would be stored in short-term memory so that Recency Effect would not occur.
15	66	12	4	18	
16	3	3	93	2	
17	73	23	2	2	
18	4	6	1	89	
19	4	3	4	89	
20	2	90	4	4	
21	46	20	21	13	This question shows that the effect of ageing on memory in healthy individuals is poorly understood. Memory does not **necessarily** decline, and elderly people can perform as well as they ever did on tests of recognition. Apparent decline in memory is considered more likely to be the effect of declining confidence in memory or a decline in motivation to learn.
22	23	63	6	9	
Area of Study 2 – Learning					
23	2	1	7	90	
24	14	2	80	4	
25	71	11	14	4	
26	3	89	7	1	
27	94	4	2	0	
28	2	1	93	5	
29	6	4	1	89	

Question	% A	% B	% C	% D	Comments
30	2	2	95	1	
31	3	15	8	74	
32	81	8	10	1	
33	29	11	41	19	The phrase 'without pauses' automatically disqualifies the two most popular incorrect options (A and C), each of which has been demonstrated to encourage increased response rate as the time (or trial) for reinforcement approaches.
34	23	1	38	38	It is important to read the whole question carefully and consider each of the alternative responses with equal care. The latter part of option A is a definition of Negative Reinforcement. Option C is wrong because of the phrase 'while providing an alternative response'. Many instances of punishment do not provide an alternative response. Option D is an accurate statement about punishment in general.
35	77	20	2	1	Both Variable Interval and Variable Ratio schedules of reinforcement are more resistant to extinction than Fixed Interval and Fixed Ratio schedules.
36	2	76	2	19	
37	29	68	1	3	
38	17	3	43	37	Option D is the only option available that seeks to promote a particular behaviour by removing an unpleasant stimulus. Option C will remove the unpleasant consequence (of failing) but there is no indication that 'taking an examination' is a desired behaviour to be reinforced.
39	10	71	8	11	
40	63	35	1	0	This question should have been among the easiest on the paper as it simply asked for a fact and required no interpretation or understanding. It is documented that, when rewarded for the behaviour themselves, children would be aggressive towards the doll even if they had seen the model punished for aggressive behaviour.
41	52	2	7	39	This question also asked for facts and required no interpretation or understanding. Boys showed more aggression than girls in all cases (option A).
42	5	55	36	3	The context of the previous two questions may have persuaded students to choose option B, which was incorrect. This question shows the importance of considering the A–B–C model proposed by Skinner describing operant conditioning: 'A' refers to the antecedent stimulus (Jamie's father coming home in a good mood), leading to the 'B' (or behaviour) (asking to borrow the car) followed by the 'C' (or consequence) (getting permission to use the car). Jamie's behaviour is as a result of stimulus discrimination (being able to differentiate his father's moods).
43	0	4	2	94	
44	93	3	1	3	

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 – Memory

Question 1

Marks	0	1	2	Average
%	60	24	16	**0.6**

She would picture (visualise) each of the endangered Australian animals placed at a certain significant location on a well-known journey. For example, a rock wallaby at her front door and a tree kangaroo climbing on the gate. When giving the talk, she would take the journey in her mind and as she imagined each of the locations, it would form a cue to enable her to remember the associated animal. Note that the use of a familiar room as the cue to help visualise the animals in a sequence of locations in the classroom is also appropriate.

Many students did not gain full marks on this question because they failed to answer the question using the 'Method of Loci' as required. This method is a technique that requires **visualisation**. Full marks were achieved only by students who referred to the scenario described in the question (endangered Australian animals) and indicated the two processes of improving encoding and storage by visualisation and using the familiar images to cue recall when required.

Question 2

Marks	0	1	2	3	4	Average
%	33	10	22	10	24	**1.8**

The 'central executive' is responsible for:

- integrating information from the phonological loop and visuo-spatial sketchpad; for example, in reading where a word is identified and sounded
- communicating with long-term memory in terms of retrieving information required; for example, when multiplying 7 × 43. This requires access to the seven times table from long-term memory
- communicating with long-term memory in terms of assigning meaning in order to commit material to long-term memory
- planning a course of action to solve a problem; for example, deciding how to open a door when one has one's hands full of shopping bags
- deciding which items require attention and which are to be ignored; for example, picking out relevant stimuli when searching a location in a street-directory.

One mark was awarded for an accurate statement of the role and one mark for citing an appropriate example. In order to obtain the second mark it was necessary for the example to match the role that had been identified. Many students lost marks by incorrectly stating that the central executive has a storage function.

Question 3

Marks	0	1	Average
%	41	59	**0.6**

'Organic cause' refers to a physiological (biological) reason for memory loss. This may be a physical trauma or fading of the memory trace through decay when the memory is not revisited over time.

To obtain the mark it was necessary for students to identify the physiological/physical/biological (health)/chemical trauma or damage to the brain or for decay **of the memory trace**. Many students erroneously stated that an organic cause of forgetting meant 'natural'; that is, 'not due to any external influences'.

Question 4a.

Marks	0	1	Average
%	17	83	**0.9**

Retrograde amnesia

This question was reasonably well answered. The most common errors included using the term 'retro-active' to describe amnesia, or wrongly identifying this as 'anterograde amnesia'.

Question 4b.

Marks	0	1	2	Average
%	40	43	18	**0.8**

A typical pattern of recovery of Haydn's memory could be:

- a gradual shortening of the period of memory loss (the fact that he would usually remember the most distant events first is correct but was not required in answers)
- he is likely to permanently forget events immediately prior to the accident
- different aspects of memory recover at different rates, for example, episodic faster than semantic
- a gradual increase in the rate of recovery as newly rediscovered memories cue (or trigger) recall of other items from the semantic network
- possible initial rapid recovery then slower (or sporadic) recovery.

One mark was awarded for each of the above points, to a maximum of two marks.

Question 5

Marks	0	1	2	Average
%	25	51	24	**1.0**

- Constable Phillips is relying on context dependent cues to assist recall by the witnesses (cued recall is more sensitive than free recall).
- The more closely retrieval cues match the external environment (physical context) in which learning occurred (the location where they saw the fight), the greater the chance of recalling the details of the fight.

Each of the above points was required to earn full marks. An otherwise correct answer that did not refer to the scenario given (a fight at the football) did not gain full marks.

Question 6

Marks	0	1	2	Average
%	31	28	41	**1.1**

- The greatest rate of forgetting would occur immediately after learning.
- After about eight hours, memory loss would slow to a steady decline and after a few days, little or no more forgetting would occur.

One mark was awarded for each of the above points.

In general it is very important for quantified amounts to be reported accurately. In this case, however, the items are strings of numbers and mnemonics such as chunking will mean that we could not predict the values on the curve accurately – in this case, therefore, descriptive terms were acceptable. Students who used Ebbinghaus' figures were given full credit.

Area of Study 2 – Learning

Question 7

Marks	0	1	2	3	4	Average
%	10	16	34	21	20	**2.3**

7i.
Pain from the needle (pain)

7ii.
Approach of nurse (nurse/sight of approaching nurse)

7iii.
Fear of pain from injection (scream because of pain)

7iv.
Fear of nurse (scream at approach of nurse)

In previous assessment reports it has been emphasised that it is necessary to distinguish between the **unconditioned** response and the **conditioned** response. Therefore, in parts iii. and iv., responses were required to be differentiated by identifying the origin as in 'fear from the pain of the injection' and 'fear due to the approach of the nurse'.

Question 8a.

Marks	0	1	Average
%	60	40	**0.4**

In observational learning we learn through observing the consequences of others' behaviours, whether they are reinforced or punished. Learning in which behaviour becomes controlled by its consequences is called operant conditioning.

Reference to **vicarious** learning, though correct, was not required.

Question 8b.

Marks	0	1	2	3	4	5	Average
%	19	19	19	18	16	10	**2.3**

- **Attention**: Her daughter should actively watch when Jodie is cooking. Jodie should point out her actions.
- **Retention**: The daughter must remember the actions that Jodie performed in her cooking, especially by doing a step at a time.
- **Reproduction**: Her daughter must have the ability to perform the cooking. It must not be too complex for her.
- **Motivation**: The daughter must want to cook. Jodie should encourage her to repeat the cooking behaviour she has seen.
- **Reinforcement**: When her daughter cooks something, Jodie should praise her to encourage her to cook again.

The wording of the question required that each step should be clearly linked to the cooking scenario. Due to the wording, use of the terms highlighted in the sample response above was not required.

It is emphasised that the use of the term **reinforcement** in the sequence of the steps in observational learning is not entirely consistent with the correct usage of the term as an element of operant conditioning. Students should be aware that the names of the steps are simply used as cue-words to help remember the process.

Question 9

Marks	0	1	Average
%	14	86	**0.9**

Thorndike called it:

- trial and error learning
- instrumental conditioning.

Question 10

Marks	0	1	2	3	Average
%	28	19	22	31	**1.6**

Similarities

- Taste aversion and classical conditioning both involve the **pairing** of the unconditioned stimulus with the conditioned stimulus to elicit a conditioned response.
- Both taste aversion and classical conditioning involve reflexive responses.
- In both taste aversion and classical conditioning the learner is passive.

Differences

- It takes only one pairing of the unconditioned stimulus with the conditioned stimulus to elicit a long lasting conditioned response in taste aversion, whereas in classical conditioning it usually takes repeated pairings.
- In classical conditioning, both the conditioned and unconditioned stimuli are contemporaneous. In taste aversion there is a long delay between the conditioned stimulus (sight/smell/taste of the food) and the effective unconditioned stimulus (bacteria in the bloodstream).
- There is a large time lapse between the unconditioned stimulus and unconditioned response in taste aversion, whereas in classical conditioning there is a short period of time between the unconditioned stimulus and the unconditioned response.
- The learning response is more difficult to extinguish in taste aversion as compared to classical conditioning.
- The conditioned response (dislike of the taste/food) is much stronger in taste aversion than in classical conditioning.

- It is less likely that the conditioned stimulus will be generalised to other similar stimuli in taste aversion, as compared to classical conditioning.

Any of the above points achieved one mark. Students needed to provide one similarity (for one mark) and two differences (for two marks).

Area of Study 3 – Research Investigation

Question 11

Marks	0	1	2	Average
%	46	39	14	**0.7**

A stated prediction of the outcome of the experiment includes:

- a statement of the population
- a statement of the independent variable
- a statement of the dependent variable
- operationalisation of the dependent variable.

A correct response necessarily included appropriate operationalisation of the dependent variable **and** a statement of the population, independent variable and dependent variable. For example, 'For VCE students, listening to loud music, loud conversation or no background noise will affect concentration, operationalised as the time taken to complete a logic puzzle'.

It is worth repeating the comment from the November 2006 assessment report: 'This question was poorly answered. Students needed to demonstrate their understanding of the concept of operationalisation and their understanding that a hypothesis is a statement of the predicted effect of a change in the **Independent** Variable on the value of the **Dependent** Variable.'

Some students are still erroneously saying that a hypothesis can be expressed as a question. This is not correct.

Question 12

Marks	0	1	2	Average
%	23	31	46	**1.2**

Independent variable

- whether the participants listen to no background noise, loud instrumental music or a loud verbal conversation while completing a logic puzzle
- the level and type of noise participants were exposed to

Dependent variable

- the level of concentration (operationalised as the time taken to complete the logic puzzle)

As the second part of the question was worth only one mark, either 'concentration' or 'time taken to complete the logic puzzle' was accepted, although neither alternative strictly justifies a complete answer.

Question 13

Marks	0	1	2	3	Average
%	35	29	25	11	**1.1**

A procedure that may have been used to obtain the sample could be:

- placing the name of each person in the population into the appropriate category of age and gender
- deciding on the size of the sample to be used and calculating the number of participants required to form the same proportions of each cohort in the sample as found in the population
- selecting participants at random using a random number generator or table or other appropriate method (such as drawing names from a hat) so that each person has the same chance of being selected as the others in the stratum.

All three points above were required in order to gain full marks.

Question 14a.

Marks	0	1	Average
%	48	52	**0.5**

Any of:

- repeated measures design
- within subjects design
- within participants design.

Question 14b.

Marks	0	1	Average
%	68	32	**0.3**

A main advantage of using this research design is (either of):

- it eliminates the effects of participant variables
- it controls participant variables (by using the same participants in the control and experimental conditions).

Question 15

Marks	0	1	2	Average
%	33	16	51	**1.2**

Name

- experimenter effect
- experimenter bias

Description

- the influence or bias of the experimenter may affect the data and influence the results

One mark was awarded for each of the above responses.

Question 16

Marks	0	1	2	Average
%	60	22	18	**0.6**

A confounding variable could be any one of:

- order effect
- practice(learning) effect
- boredom effect.

The researcher should have included counterbalancing in her research design, where the order of the conditions was **varied** for each third of the participants. For example, in conditions a, b and c they could be arranged in any of the following orders: abc, acb, bac, bca, cab or cba.

One mark was awarded for each of the above responses.

Question 17

Marks	0	1	2	Average
%	23	35	42	**1.2**

Yes, this is a valid conclusion to make. The level of significance was set at 0.05 and Denise calculated a p value less than 0.05 for her study. This meant that the probability was less than 5 in 100 (5 per cent, or 1 in 20) that her results were due to chance.

The question emphasised a response in terms of **statistical significance**. Confounds due to sampling errors or to experimental procedures are therefore not relevant here.

Question 18

Marks	0	1	2	Average
%	18	46	36	**1.2**

Students needed to comment on both 'informed' and 'consent'.

Informed
Parents and students are given detailed information about:

- process and intent of the research
- the rights of the participants
- any risks involved.

Consent
Participants and their parents then agree that the students may take part in the study.

Since participants in this study are under 18 years old, a correct answer needed to refer to the consent of **parents**.

Question 19

Marks	0	1	Average
%	29	71	**0.7**

It is important to repeat this study at another school to:

- determine if the results can be generalised to a different population
- check earlier results (importance of arriving at statistical significance)
- make results more robust
- test the validity of the results.