



## GENERAL COMMENTS

Students' performance on the 2006 examination 2 paper was slightly superior to previous years, especially in the Short answer section. Some improvement was shown in this section, especially in terms of addressing the **instructional terms** in the questions. However, as in the Unit 3 examination, it appeared that students continued to have some difficulty interpreting questions and often lost 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 superior to the mean score on the equivalent Short answer section.

As in 2005, but in contrast to previous years, the 'Learning' section yielded the highest average score in the Short answer section (63 per cent), with 'Memory' (56 per cent) next and 'Research Methods' (46 per cent) being the most problematic. In the Multiple-choice section, the average scores for 'Memory' and 'Learning' were very similar (71 per cent and 70 per cent respectively).

Students are encouraged to attempt all questions in the Multiple-choice section rather than leaving any lines blank. Not only is it impossible to achieve a mark if no response is given, it also increases the likelihood that later answers on the computer-scored sheet will be out of synchronisation, and marks cannot be awarded where answers are shaded on incorrect lines. Marks are not lost for incorrect responses, therefore if they are unsure of an answer, students are advised to mark the response that is their 'best guess' – it is always possible to change a response later.

### Marking Policy – Section B, short answer questions

In general, two-mark questions require two pieces of information; one mark is available for each part and answers that fail to address both parts **cannot** achieve full marks. In this examination this applied, for example, to Questions 1b., 6 and 12b.

Where a question requires definition of a term, use of the term (or its derivatives) as part of its own definition **precludes** the award of full marks for that response. Such responses clearly do not show full understanding of the term. In this examination, this related to Question 6 in Area of Study 2.

This examination contained several questions in which students were required to answer with respect to a certain theory or context; for example, 'With reference to consolidation theory' (Question 2, Area of Study 1) and 'In terms of both decay theory and motivated forgetting theory' (Question 4a., Area of Study 1). Students must be careful to follow the instructions in such cases.

In Area of Study 3, each question **must** be answered with reference to the research study described, as stated in the instructions on the examination paper. Generic answers do not show a clear understanding and cannot gain full marks.

## SPECIFIC INFORMATION

### Section A – Multiple-choice questions

Question	% A	% B	% C	% D	Comments
<b>Area of Study 1 – Memory</b>					
1	3	3	94	1	
2	5	1	3	91	
3	11	11	77	2	There is some confusion about the sensitivity of the different measures of memory, and there are slight differences depending on which register or division is being considered. Consistently in VCE examinations, the most sensitive measure of memory is accepted to be re-learning.
4	2	7	86	5	
5	8	13	57	22	If a person is <b>aware</b> of a memory, then that memory cannot be in sensory memory because attention has been paid to it.
6	78	3	3	15	
7	8	3	8	80	
8	19	77	1	4	
9	10	2	6	82	

# 2006 Assessment Report



Question	% A	% B	% C	% D	Comments
10	8	10	77	5	
11	2	68	28	2	Students who chose option C, 'meaningful' showed a lack of understanding of levels of encoding. 'Structural encoding' (according to the physical characteristics of the item to be stored) and 'phonemic encoding' (according to the sound of the item to be stored) do not involve meaning, which is required for 'semantic encoding'.
12	6	55	34	5	Elaborative rehearsal involves adding meaning and linking the items to be remembered to items already in memory. Only option C, 'rehearsing the names in alphabetical order' complies with the explanation. Option C, 'looking at each face and saying the name over and over' is simply another form of maintenance rehearsal.
13	10	10	5	75	
14	91	2	1	7	
15	6	4	83	6	
16	89	7	3	1	
17	62	18	16	4	Anterograde amnesia refers to a condition in which new memories cannot be effectively consolidated after a trauma; usually people can recall information for several minutes but the formation of the memory traces is never completed. In extremely rare cases only short-term memory will remain. This means that the relatively popular options B and C were clearly incorrect.
18	14	13	64	9	The study design refers only to the effects on memory of ageing in a healthy individual.
19	11	84	3	2	
20	1	62	37	0	It is likely that the use of the term 'locations' in option C caused a significant number of students to choose this incorrect answer.
21	8	3	2	86	
22	1	4	20	75	
<b>Area of Study 2 – Learning</b>					
23	9	1	84	6	
24	40	41	10	8	The elimination of obviously incorrect alternatives yielded the correct answer: <ul style="list-style-type: none"> <li>fixed action patterns are not simple responses (option A)</li> <li>fixed action patterns are not learned or conditioned (option C)</li> <li>fixed action patterns <b>are</b> genetically programmed (option D).</li> </ul>
25	18	4	76	2	
26	49	36	6	8	One of the characteristic features of taste aversion is that the response occurs hours after the conditioned stimulus (tainted food) is presented. This eliminates option A.
27	14	14	50	22	Option D is incorrect as one-trial conditioned taste aversion has no resemblance whatsoever to negative reinforcement.
28	73	7	18	2	
29	9	16	59	17	The study design stipulates that Skinner's original research should be studied in the context of operant conditioning.
30	10	66	17	7	
31	22	75	2	2	
32	7	10	29	53	This question may be taken as an indicator of the degree of detail in which schedules of reinforcement should be studied.
33	78	20	2	0	
34	91	8	0	1	

# 2006 Assessment Report



Question	% A	% B	% C	% D	Comments
35	3	76	12	10	
36	12	6	15	67	
37	3	78	7	12	
38	9	7	75	8	
39	2	4	88	6	
40	16	25	53	5	It may assist students to remember that Bandura referred to modelling as 'Social Learning Theory'.
41	4	90	2	4	
42	20	2	8	70	
43	30	62	6	2	
44	2	95	1	2	

## Section B – Short answer questions

### Area of Study 1 – Memory

#### Question 1a.

Marks	0	1	Average
%	19	81	0.8

Short-term memory or working memory

This question was well answered.

#### Question 1b.

Marks	0	1	2	Average
%	27	16	57	1.3

Examples of acceptable techniques included:

- narrative chaining
- method of loci
- peg word method
- acronym
- acrostic
- rhyming.

Examples as acceptable explanations included:

- narrative chaining: Karlee takes the name and address of the music store (Marley's Music, 49 Butler Avenue, Melbourne) and creates a story out of the words; for example, 'Bob Marley makes great music, although he is on his 49th Melbourne butler'
- method of loci: Karlee pictures (visualises) the store name and address (Mickey's Music, Swan Street) as Mickey Mouse and a swan located at specific positions on a well-known journey or in a well-known location, so that she can re-visit these places in her imagination and allow the locations to cue the images.

Any mnemonic technique was acceptable, provided the explanation matched and the explanation worked with the example given in the stem.

Many students used such mnemonics as 'acronyms' or 'acrostics' as their examples. These were acceptable, providing an appropriate example was given, but students and teachers should note that the study design only nominates 'narrative', 'chaining' and 'method of loci'. Students must have knowledge of the techniques listed in the study design, as future examination questions may restrict answers to these techniques.

#### Question 2

Marks	0	1	2	3	Average
%	36	25	24	14	1.2

Students' answers should have referred to the following information.

- The transfer of information from short-term memory to long-term memory requires a period of time for stabilisation (consolidation) to occur for it to be properly stored.

# 2006 Assessment Report



- Neural (organic/biological/chemical, etc.) changes in the brain that occur when something new is being learned occur for a period of time after learning.

Either of the following conclusions was acceptable.

- The exciting football match should not have caused disruption to the consolidation process, as the two types of information are sufficiently different not to interfere with one another, and Connor's ability to remember the information the following morning would not be affected.
- There could be some disruption in consolidation because the new experience influences mental function and processes.

This question was poorly answered. The main difficulty was a failure to respond in terms of consolidation theory, as required by the question.

### Question 3

Marks	0	1	2	Average
%	37	6	57	1.2

- phonological loop/articulatory rehearsal loop/rehearsal loop
- visuospatial sketchpad

Although some texts indicate a dual role for the articulatory loop, it is emphasised that it is the storage component, as shown in this response, that was required by the wording of the question.

### Question 4a.

Marks	0	1	2	3	4	Average
%	9	14	36	13	28	2.4

Decay theory

- The physical (chemical/biological/organic) trace of the event (or 'memory trace') was formed in Olga's brain when Olga experienced the incident.
- The physical or chemical trace has faded due to it not being regularly re-visited during her lifetime.

Motivated forgetting theory

- This could occur if the incident at Olga's 21st birthday was traumatic or extremely upsetting.
- Olga may have continually kept the memory from conscious awareness.

Students who did not clearly relate the forgetting to the theory required were not able to gain full marks for this question.

### Question 4b.

Marks	0	1	2	Average
%	26	45	29	1.1

The semantic network theory states that information in long-term memory is stored in overlapping networks of interconnected concepts. The activation of one node or piece of information activates other, related nodes. Olga could think about other things related to her 21st birthday party, such as who was present or what she was wearing (which would be stored in the same 'region' as the memory of the event), and trace associated concepts for links to the memory of the incident. Or, Olga could use context or state-dependent cues to attempt to enable her to access the specific items in her semantic network.

Again, the problem for many students was failing to refer to semantic network theory and its role in this recall.

## Area of Study 2 – Learning

### Question 5a.

Marks	0	1	Average
%	30	70	0.7

Classical conditioning

# 2006 Assessment Report



The most common error was to identify this as 'one-trial learning'. In the *Psychology VCE Study Design*, the relevant dot point on page 27 states 'one-trial learning with reference to taste aversion'.

## Question 5b.

Marks	0	1	2	3	4	Average
%	3	8	23	26	41	<b>3.0</b>

### 5bi.

Elise's favourite song

### 5bii.

Elise crying and shaking/being upset **at the sound of the song**

### 5biii.

Near-accident with the bus/bus just missing Elise

### 5biv.

Elise crying and shaking/being upset **because of the near-miss**

The additional information highlighted in bold was essential for an entirely correct answer.

## Question 5c.

Marks	0	1	Average
%	25	75	<b>0.8</b>

Stimulus generalisation

## Question 5d.

Marks	0	1	Average
%	16	84	<b>0.9</b>

Extinction

## Question 6

Marks	0	1	2	Average
%	42	24	34	<b>0.9</b>

Negative reinforcement occurs with the **removal** of an unpleasant (aversive/nasty) stimulus. This produces an **increase** in the strength, likelihood or frequency of a response. For example, **removal** of a headache (unpleasant stimulus) by taking Panadol **increases** the likelihood that Panadol will be taken the next time you have a headache.

The most common error was to confuse 'negative reinforcement' with 'punishment'. Students must be careful to ensure that the example they give clearly illustrates the required process, as many descriptions were vague or superficial.

## Question 7

Marks	0	1	2	Average
%	53	32	15	<b>0.6</b>

Initially, Thorndike's cat tried to escape the puzzle box using 'trial and error' (random voluntary movements) trying many techniques until it accidentally pulled the string and the door opened so that it could reach its reinforcement (food). After several trials, the cat learned to pull the string to escape the box and reach the food. Thorndike concluded that the cat had learned the association between its behaviour (pulling the string) and the consequences (reaching the food). This is instrumental learning.

This question was very poorly answered, mainly because students did not follow the instructions in the question and relate their answer to Thorndike's puzzle box experiment.

## Question 8a.

Marks	0	1	2	Average
%	7	57	36	<b>1.3</b>

# 2006 Assessment Report



Appropriate reasons included:

- for punishment to be effective, it should be presented immediately following the undesirable behaviour – it was several hours before John inflicted his punishment
- for punishment to be effective, it must be clearly linked with the undesirable behaviour in the mind of the learner (child)
- the punishment (smack) may not be appropriate or seen as a punishment by the toddler; that is, it may give him attention that he craves from his father
- physical punishment such as a smack may cause the toddler to feel aggressive or resentful towards his father
- punishment does not give alternative ways of behaving, so the misbehaviour is likely to be replaced by another unwanted behaviour.

## Question 8b.

Marks	0	1	Average
%	18	82	<b>0.8</b>

Jackie and John could give their son tokens or rewards for positive behaviour, such as giving him a cuddle when he behaves, telling him he is a good boy, etc.

This question was well answered.

## Area of Study 3 – Research Investigation

### Question 9

Marks	0	1	2	Average
%	35	30	34	<b>1.0</b>

9i.

Whether students listen to classical music before completing the paper task or not.

Although 'listening to classical music' was acceptable, 'listening to classical music **while** performing the paper folding and cutting task' was **not** correct.

9ii.

The score obtained on the paper folding and cutting test **or** the performance on spatio-temporal tasks.

### Question 10

Marks	0	1	2	Average
%	48	34	18	<b>0.7</b>

That VCE students from Hilltop Secondary College who listen to classical music for twenty minutes before performing spatial-temporal tasks will perform better on these tasks – operationalised as a score on a paper folding and cutting test (that is, they will score higher on this test than when they do not listen to classical music prior to performing spatial-temporal tasks).

Essential components of an operational hypothesis are:

- statement of population
- statement of independent variable
- operationalisation of the independent variable if it is other than a forced dichotomy
- statement of dependent variable
- operationalisation of dependent variable.

This question was poorly answered. Students needed to demonstrate their understanding of operationalisation and that a hypothesis is a statement of the predicted effect of a change in the **independent variable** on the value of the **dependent variable**.

### Question 11 a.

Marks	0	1	Average
%	56	44	<b>0.5</b>

# 2006 Assessment Report



Random sampling was **not** used in this study. Random sampling would allow every member of the population the same chance of being involved in the study. This did not occur as Professor Williams used the first 40 students who walked into the library.

This was a surprisingly low score for such a straightforward question, demonstrating that the concept of random sampling was not well understood.

## Question 11b.

Marks	0	1	Average
%	62	38	<b>0.4</b>

Random sampling is often preferred as it is more likely that a sample gained this way will be representative of the population of interest **and/or** participant variables will be distributed in the sample in the same proportions as in the population (so their effects on the dependent variable will be eliminated).

Merely stating that it is preferred because every member of the population has the same chance of being selected, as many students did, was not awarded a mark as this did not provide an explanation of why random sampling is preferred. Sampling (as a means of eliminating participant variables as potential confounds) was obviously not well understood.

## Question 12a.

Marks	0	1	Average
%	41	59	<b>0.6</b>

Either of:

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

## Question 12b.

Marks	0	1	2	Average
%	41	29	30	<b>0.9</b>

Either of:

- order effect(s)/practice effect: the sequence in which the conditions were performed may become an extraneous variable as performance on the task completed second may be better because of the experience gained in completing the first task, and not because of the classical music
- boredom effect: participants may be fatigued or bored when they come to complete the second task and not perform as well.

The phrasing of the question required that a basic flaw in the **research design** should be identified. Flawed methodology in terms of sampling procedures or placebo effect did not address this point.

## Question 12c.

Marks	0	1	2	Average
%	51	17	32	<b>0.8</b>

Counterbalancing: the order in which the conditions of a repeated measures experiment are completed are arranged so that each condition occurs equally often in each position.

Of students who obtained any marks for this question, two thirds gained full marks. This suggests that when counterbalancing had been learned it was a concept that was well-understood. The 50 per cent of students who obtained no marks tended to either make no response or made an error in identifying the design flaw in part b.

## Question 13

Marks	0	1	2	Average
%	7	46	46	<b>1.4</b>

- Participants are entitled to leave the study at **any time** during the conduct of the study.
- Participants may withdraw their results from the study at any time following the completion of the study.

Some students confused 'withdrawal rights' with 'voluntary participation'.

# 2006 Assessment Report



## Question 14

Marks	0	1	Average
%	18	82	<b>0.8</b>

The results are statistically significant. The probability that the results occurred by chance alone is stated to be less than five per cent ( $p < .05$ ).

This question was well answered.

## Question 15

Marks	0	1	2	Average
%	76	10	14	<b>0.4</b>

No conclusion can be made about the underlying population from which the sample is drawn because (either):

- participants were not selected by random selection (and therefore the sample is not representative of the underlying population)
- the repeated measures design was not counterbalanced, therefore the researcher cannot conclude that the results were due to the effect of the independent variable alone.

The majority of students indicated some form of conclusion, almost certainly because of the statement that the probability was less than .05. It is emphasised that a statistically significant result may be obtained but, where confounding variables invalidate the methodology, no conclusion about the population may be drawn.

## Question 16

Marks	0	1	2	Average
%	33	35	32	<b>1.0</b>

Possible responses included:

- interpretation and explanation of results (statement of statistical significance)
- a conclusion as to whether hypothesis was supported or rejected
- generalisation of the results to the population from which the sample was drawn
- a description of theory/previous research referred to in the introduction, and a comparison with the results of this study
- a description of extraneous or confounding variables and their possible impact on the results
- suggestions as to how to control extraneous variables should the study be repeated
- suggestions for further research following on from this study
- a statement that no conclusions can be drawn because of the flawed method.

This question was poorly answered, which was surprising as every student must complete a research investigation and write a report as a work requirement for Unit 4. The contents of the discussion of such a report are exactly what was required of Professor Williams.