

GENERAL COMMENTS

Performance on the November paper was of a high standard and the overall results were slightly better than Examination 2 in 2001. Students did well on all sections of the paper although many struggled to explain issues based on theory or were unable to name and distinguish between different research designs. Students demonstrated sound knowledge and understanding of most aspects of the curriculum but many performed below their capabilities by not covering all requirements of the questions in their answers.

In the multiple-choice section all three areas were well answered with mean performance for Memory slightly better than for both the Learning and Research Methods. Performance on the short-answer questions was not as strong and this was often as a consequence of imprecise language, lack of detail, failure to use correct psychological terminology or incompleteness of content in the answers. In questions where both the name and a description or explanation of a psychological concept or key feature was required, no marks were awarded unless both pieces of information were provided. Students should read questions carefully and identify precisely what is required to avoid losing marks unnecessarily in their answers.

Marking policies

Short answer section questions worth 2 marks typically require two key terms or pieces of information. Three mark questions normally require three terms or pieces of information. However, in some questions, two pieces of information, two terms or a name and a description or explanation, are required for each mark (e.g. identify *and* explain, Question 12) and this is made clear in the question stem.

SPECIFIC INFORMATION

This table indicates the approximate percentage of students choosing each distractor. The correct answer is the shaded alternative.

Multiple-choice questions

This section of the paper was very well answered with mean performance above 70% on all three areas of study. Some of the more difficult questions are discussed.

Memory

Question	A	B	C	D	
	%				
1	11	1	83	5	
2	84	6	6	4	
3	1	92	1	6	
4	0	91	3	6	
5	5	4	85	6	
6	2	42	54	2	Although a high proportion of students incorrectly selected Alternative C (<i>chunking information to retain it in short-term memory</i>) there is no suggestion that the information is only being held and retrieved from short-term memory. The correct answer is Alternative B (<i>organisation of information during encoding to help with later retrieval</i>). This answer refers to the processes that operate automatically and quickly when meaningful stimuli such as real words are encoded and which do not apply when meaningless stimuli such as nonsense syllables are presented.
7	4	11	2	83	
8	85	3	1	11	
9	94	2	3	1	
10	5	11	64	20	
11	20	9	6	65	
12	31	67	1	1	
13	18	3	3	76	
14	4	4	79	13	
15	87	9	2	2	

Learning

Question	A	B %	C	D	
16	3	87	7	3	
17	23	12	42	23	Students did not understand the nature of the association acquired during classical conditioning. An association is developed between the conditioned stimulus (initially neutral with respect to the unconditioned response) and the unconditioned stimulus (correct alternative is C). Due to this association the conditioned stimulus triggers a conditioned response which is similar to the unconditioned response. Students who incorrectly selected Alternative A (<i>conditioned stimulus and conditioned response</i>) demonstrated a misunderstanding of the concepts of association and consequence. The conditioned response is a <i>consequence</i> of the association between the conditioned stimulus (Alternative A) and the unconditioned stimulus. Those who incorrectly selected Alternative D (<i>neutral stimulus and the unconditioned response</i>) failed to appreciate that this link comes only through the association of the neutral stimulus and the unconditioned stimulus.
18	3	95	1	1	
19	7	2	4	87	
20	61	11	23	5	Students who incorrectly selected Alternative C (<i>negative reinforcer; decreasing the response rate</i>) misunderstood the operant conditioning procedures of punishment and negative reinforcement. Punishment is the presentation of an unpleasant stimulus, in this case, an unpleasant vapour sprayed onto the dog's nose that weakens or decreases the barking response (correct Alternative A). Conversely, negative reinforcement is the <i>removal</i> of an unpleasant stimulus when the desired behaviour is displayed to <i>strengthen</i> a response.
21	22	2	68	8	Students had difficulty distinguishing between classical and operant conditioning procedures. In classical conditioning a stimulus, initially neutral with respect to the unconditioned response, is linked to an unconditioned stimulus, to trigger a conditioned response. A temporal pairing or association must be formed between the conditioned and unconditioned stimuli. The behaviour is triggered by the stimulus and is not governed by the consequences of the action, as applies with operant conditioning. In the scenario described in the question, the behavioural outcome (i.e. the dog stops barking) is a consequence of the punishment that follows the behaviour of barking, making Alternative C (<i>operant conditioning</i>) the correct answer.
22	12	17	3	68	
23	5	81	7	7	
24	62	23	9	6	The correct answer is Alternative A (<i>fixed interval</i>) because the pocket money reward was administered at regular intervals (i.e. at the end of each week) provided the desired behaviour had been displayed (i.e. maintaining a tidy room).
25	10	3	81	6	
26	39	5	4	52	
27	12	20	62	6	
28	2	8	9	81	
29	90	5	3	2	
30	4	63	18	15	

Research methods

Question	A	B %	C	D	
31	10	6	81	3	
32	8	68	18	6	
33	3	54	7	36	Many students incorrectly thought an operational hypothesis describes how a study will be statistically analysed (Alternative D). The correct answer (Alternative B) an operational hypothesis <i>describes the methods used to address the research question</i> . Statistical analyses are not specified in an operational hypothesis.

34	60	17	11	12	
35	3	8	81	8	
36	1	1	2	96	
37	2	4	16	78	
38	13	85	2	0	
39	85	13	2	0	
40	24	3	4	69	Many students could not identify the major limitation in Brigit's experimental design and incorrectly selected Alternative A (<i>she did not know what marks the students actually got for the examination</i>). This variable is irrelevant to the researcher's hypothesis which makes no predictions about examination performance as a function of time spent studying. The major limitation is that <i>the students were not randomly allocated to groups</i> (Alternative D).
41	27	1	38	34	Students need to understand Brigit's conclusion that students who listen to music while studying will study for longer periods of time is not valid <i>because she cannot determine cause from her experimental design</i> (Alternative A). Many incorrectly thought statistical significance validates Brigit's conclusion (Alternative C) and others thought the conclusion was valid as <i>her data supports her theory</i> (Alternative D). Neither factor can validate a conclusion based on a poor experimental design which contains confounds (e.g. the two groups had different teachers and the lack of random allocation to groups).
42	8	4	87	1	
43	6	39	47	8	Many students incorrectly selected Alternative C (<i>a sample that equally represents all members of a population</i>) as the best description of a stratified sample. However, to meet this requirement, members of all sections of a population would have to be included in the sample and they would have to comprise the same numbers of members so it would not constitute a stratified sample. A stratified sample is a subset of a population comprising <i>people who are selected for certain characteristics</i> (Alternative B) that the researcher believes may be important to the variables being tested.
44	4	3	91	2	
45	17	61	13	9	

Short-answer questions

Memory

Most students were able to distinguish between encoding and retrieval processes (Question 1) but fewer could outline two key features of the semantic network theory of memory (Question 4i). Even less students could explain how information is retrieved from long-term memory according to the semantic network theory (Question 4ii). Most students could not describe the differences between the three memory levels in terms of capacity and duration (Question 2) but could correctly label the descriptions of elaborative and maintenance rehearsal and define procedural memory (Question 5). Students could distinguish between the mnemonic techniques of acrostics and narrative chaining (Question 6i) and provide a specific mnemonic to assist recall of a shopping list (Question 6ii).

Question	Marks	%	Response
Question 1	0/2	13	This question was quite well answered with most students knowing that encoding involves <i>converting or transforming information into a meaningful form or code for storage</i> whereas retrieval is the <i>recovery or accessing of information or memories from storage</i> . Describing encoding as a deliberate reorganisation of information was not acceptable as this does not distinguish it from the more active memory strategies associated with elaborative rehearsal.
	1/2	43	
	2/2	44	
	(Average mark 1.3)		
Question 2	0/3	28	This question was not particularly well answered. In describing the relationships between the three memory levels students had to refer both to the capacity and duration of each memory type for full marks. The following information was required: a) <i>sensory memory – unlimited capacity; duration – a fraction of a second to a few seconds</i> ; b) <i>short-term memory – capacity 7 ± 2 chunks of information; duration – 20–30 seconds, if unattended</i> ; c) <i>long term memory – unlimited capacity; duration – relatively permanent, indefinite, or up to a lifetime</i> . Correct information for both capacity <i>and</i> duration was required to gain 1 mark for each memory
	1/3	21	
	2/3	31	
	3/3	20	
	(Average mark 1.42)		

		type. The most common flaw in students' answers involved providing only one of the two pieces of information for each memory level.
Question 3	i 0/1 42 1/1 58 (Average mark 0.58)	Most students knew that the process of linking new information in a meaningful way is called <i>elaborative rehearsal</i> (or a <i>mnemonic technique</i>).
	ii 0/1 31 1/1 69 (Average mark 0.69)	Many students knew that the process of simple, rote repetition of information to maintain it in short-term memory is called <i>maintenance rehearsal</i> .
Question 4	i 0/2 53 1/2 33 2/2 14 (Average mark 0.6)	This was not well answered either because students failed to provide any answer or because they described the key features of a semantic network too generally. For full marks students had to state: Feature 1: <i>Information is organised systematically in networks of concepts (nodes)</i> ; and Feature 2: <i>Nodes of information are interconnected by meaningful links</i> . Students had to separate the two components (nodes and links) for two marks. A successful answer was: (1) 'information is stored systematically and meaningfully in the form of overlaying networks of concepts (called modes) and (2) nodes are connected by meaningful links ...'
	ii 0/1 82 1/1 18 (Average mark 0.18)	This question was poorly answered. Students had to provide a two-part explanation of how information is retrieved from long-term memory according to the semantic network theory as follows: a) <i>cues activate the nodes (or concepts) in the network</i> ; and b) <i>activity then spreads (or activates more nodes) in the network to retrieve related nodes of information</i> . A successful answer was as follows: 'information is retrieved from long-term memory by cues which activate nodes. The more nodes activated, the more chance the correct information is retrieved.'
Question 5	0/2 22 1/2 8 2/2 70 (Average mark 1.47)	This question was quite well answered with most students obtaining 1 mark for stating that procedural memory is <i>memory for skills or knowing how to perform an action or skill</i> . A further mark was awarded for any example of performing a skilled task such as <i>riding a bicycle, playing a sport or playing a musical instrument</i> . Examples which referred to the process of <i>learning or acquiring</i> new skills (e.g. learning how to play a musical instrument) were not accepted. No marks were awarded to students who provided a correct example but gave an incorrect definition of procedural memory; however, 1 mark overall was awarded in cases where the definition was correct but the example was wrong.
Question 6	i 0/2 22 1/2 31 2/2 46 (Average mark 1.23)	Most students could distinguish between the mnemonic techniques of acrostics and narrative chaining. For full marks students had to state the following two pieces of information: a) <i>acrostics – substituting new words beginning with the first letters of the words to be remembered and linking them in a meaningful phrase or sentence</i> ; and b) <i>narrative chaining – linking the to-be-remembered words as key words in a meaningful or bizarre story, paragraph or narrative</i> .
	ii 0/1 32 1/1 68 (Average mark 0.68)	One mark was awarded for either an acrostic or any other mnemonic technique that linked the items on the shopping list in a meaningful manner. When students named a mnemonic technique in their answers (though not required) their example had to be correct otherwise no mark was awarded. The most common error was confusion between acrostics and acronym mnemonics. Maintenance rehearsal procedures, such as rote learning or repetition, were not accepted as mnemonic techniques.

Learning

Many students were able to identify the process of observational learning (Question 12i) and outline some of the key elements of this type of learning (Question 12ii). Although most students named punishment as the type of consequence used to control misbehaving students (Question 10i) only some were able to explain why punishment may be ineffective in changing the students' behaviour (Question 10ii). The unethical aspects of Watson's experiment with 'Little Albert' (Question 7) were very well considered but definitions of the term 'phobia' (Question 9i) and stimulus generalisation

(Question 9ii.) were not well expressed. Most students could not give an example of learning set (Question 11i) or define the fixed ratio schedule of reinforcement (Question 11ii).

Learning

Question 7	0/2 12 1/2 34 2/2 53 (Average mark 1.4)	Students had to describe any two of the following aspects of Watson's experiment with 'Little Albert' which are considered unethical: a) <i>possibility of psychological harm to the participant</i> ; b) <i>informed consent may not have been obtained from parent</i> ; c) <i>not terminating the experiment when Albert became distressed</i> ; d) <i>failure to debrief, extinguish/return/de-condition Albert to his prior state</i> ; e) <i>no allowance for a participant to exercise withdrawal rights</i> ; f) <i>non-voluntary participation</i> ; g) <i>psychologically vulnerable participant in a study planned to cause distress</i> ; and h) <i>lack of confidentiality of a participant's results of the study</i> .
Question 8	0/3 11 1/3 23 2/3 44 3/3 21 (Average mark 1.75)	This question was quite well answered. As the scenario contained features of classical and operant conditioning as well as one-trial learning any of these three types of conditioning was acceptable for 1 mark. A further 2 marks were awarded for correctly identifying the conditioned stimulus as the <i>dog</i> , and the conditioned response as <i>fear and/or avoidance of dogs</i> . A common error was naming the conditioned response as <i>fear</i> rather than <i>fear of dogs</i> . As fear can be an unconditioned response it was not acceptable in this context.
Question 9	i 0/1 53 1/1 47 (Average mark 0.47)	This question was not well answered. For 1 mark, students had to state that a phobia is both an <i>intense and irrational fear of a specific event or object</i> . Many students failed to gain a mark by providing only one of the two key features of a phobia.
	ii 0/1 46 1/1 54 (Average mark 0.54)	Most students were able to define stimulus generalisation. This occurs when <i>a stimulus similar to the conditioned stimulus produces the same learned response</i> .
Question 10	i 0/1 30 1/1 70 (Average mark 0.70)	A well-answered question with most students correctly identifying the type of consequence as <i>punishment</i> .
	ii 0/2 47 1/2 33 2/2 21 (Average mark 0.73)	This question was poorly answered. For full marks students had to provide any two of the following reasons why the consequence of punishment was ineffective in this case: a) <i>not harsh/severe enough to weaken the response</i> ; b) <i>no alternative (positive) behaviours provided</i> ; c) <i>'attention' from the punisher may be positively reinforcing/rewarding the bad behaviour</i> ; d) <i>may lead to a dislike or fear of the punisher</i> ; e) <i>may lead to 'avoidance of getting caught' behaviour</i> ; f) <i>not administered soon enough after the response</i> ; and g) <i>may lead to more aggressive behaviour</i> .
Question 11	i 0/1 54 1/1 46 (Average mark 0.46)	Students struggled to give an example of a learning set. Any example of positive transfer of learning from a previous learning situation was acceptable. Possible examples included: a) <i>playing one musical instrument (e.g., the violin) then learning to play another (e.g. guitar)</i> ; b) <i>playing soccer then learning to play AFL football</i> ; or, c) <i>learning to speak Spanish then learning Italian</i> . Students who provided a correct definition but no example of a learning set did not gain any marks.
	ii 0/1 53 1/1 47 (Average mark 0.47)	This question on fixed ratio reinforcement schedule was poorly answered. Many students confused the fixed ratio and fixed interval schedules or were insufficiently precise in their answers. Students had to state that the fixed ratio schedule of reinforcement awards <i>a reinforcement or reward after a set (fixed) number of correct responses</i> have been carried out.
Question 12	i 0/1 10 1/1 90 (Average mark 0.90)	This question was very well answered with most students indicating that the type of learning displayed by Alex was <i>observational learning</i> or <i>modelling</i> . Latent learning was not acceptable.

	ii		Performance on this question was quite poor. In many cases students failed to provide both the name of the key element and an explanation of how it applied to help Alex learn to cook. Students had to name and explain any two of the following key elements of observational learning: a) <i>attention – watching/observing his mother cook</i> ; b) <i>retention – storing in memory what she did while cooking</i> ; c) <i>reproduction – replicating (from memory) what his mother did when trying to cook for himself</i> ; or d) <i>motivation/ reinforcement – the desire to perform what was observed, or desire to be independent/keen to show that he could cope</i> . Students who had incorrectly named the type of learning in Question 12i did not gain any marks in Question 12ii.
	0/2	54	
	1/2	8	
	2/2	37	
	(Average mark 0.82)		

Research methods

Most students could not correctly identify the types of research designs described in the two experiments (Questions 14i and 15i). The key differences between independent groups and repeated measures designs needs to be stressed more strongly with students. This problem was also apparent with many students being unable to describe a single feature of an independent groups design (Question 13). Students could not draw an appropriate conclusion from a set of data and explain their answer (Question 14ii) and others could not name the dependent variable measure used in the driving simulator experiment (Question 15ii). On the positive side, students performed well in explaining the similarity and difference between single- and double-blind procedures and discussing which is more advantageous (Question 18). Most students were also able to draw a correct conclusion from the driving simulator experiment (Question 16i) and many could identify a number of potential weaknesses in the design that limited generalisation of the results (Question 16ii). However, attempts to explain the basis of statistical significance and its relevance to a research hypothesis proved very difficult for many students (Question 17).

Question 13	0/2	47	Students had to state that in an independent groups design: 1) <i>participants are randomly allocated to different groups</i> ; and 2) <i>each group is assigned to only one level of the independent variable, or to the experimental or control condition</i> .
	1/2	37	
	2/2	17	
	(Average mark 0.69)		
Question 14	i		Most students were unable to correctly name the research design used in the drug trial study as <i>independent groups</i> . This highlights a major weakness in many students' ability to read and interpret the design features of a piece of research. Contained in the description of the study were the two key features of the independent groups design ('... participants were <i>randomly allocated to either Group A or Group B</i> , and <i>Group A were given the headache drug and Group B ... a sugar pill</i> ').
	0/1	62	
	1/1	38	
	(Average mark 0.38)		
	ii		Students had to provide the following conclusion and explanation: a) <i>the headache drug is no more effective than a placebo (sugar pill), or its true effectiveness is unclear</i> ; because b) <i>both the placebo (Group B) and the drug groups (Group A) showed similar reductions in headaches when introduced at the end of Week 4</i> . Answers concluding that the drug was ineffective were not acceptable as this conclusion cannot be drawn from the set of results provided.
	0/2	49	
	1/2	40	
	2/2	11	
	(Average mark 0.61)		
Question 15	i		Many students could not name the experimental design used in the driving simulator study as <i>repeated measures</i> despite the clear statement that student participants 'drove ... under four conditions'. Others thought the design was correlational even though comparisons were made between the four driving conditions.
	0/1	56	
	1/1	44	
	(Average mark 0.44)		
	ii		Students could not name the dependent variable measure used in the experiment despite it being clearly labelled on the vertical axis of the data set shown in Figure 5. The correct answer is <i>average kilometres (or speed in kms) over the speed limit</i> . Speed in kilometres alone was not acceptable.
	0/1	58	
	1/1	42	
	(Average mark 0.42)		
Question 16	i		Most students correctly drew the conclusion that the <i>faster the tempo of the music listened to by the participants the greater the speed limit was exceeded</i> .
	0/1	21	
	1/1	79	
	(Average mark 0.79)		
	ii		Students had to list two of the following reasons why the results could not

	0/2 1/2 2/2 (Average mark 1.16)	24 36 40	be generalised to all drivers: a) <i>cannot generalise from a driving simulator to actual driving</i> because the task may lack ecological validity; b) <i>age of participants not controlled or representative of all drivers</i> – all participants were students; c) <i>years of driving experience not controlled</i> ; d) <i>carryover effects (e.g. learning) from one condition to another</i> due to repeated measures design; e) <i>participant expectancy effects might have contributed to outcome</i> as can occur with a repeated measures design; f) <i>sample size is quite small compared to the population of drivers</i> ; g) <i>non-random selection of sample participants from the population of drivers</i> – only students were used; and h) <i>gender of participants was not controlled or known</i> .
Question 17	0/2 1/2 2/2 (Average mark 0.73)	46 35 19	Students had to state: a) <i>$p < .05$ means the likelihood (or probability) that the results have occurred by chance is less than 5 times in 100, or the results are statistically significant</i> , and b) <i>the hypothesis is supported or accepted</i> . Claims that the hypothesis had been proven correct or true were not acceptable.
Question 18	0/3 1/3 2/3 3/3 (Average mark 1.87)	23 13 17 47	Students had to provide three pieces of information outlining the similarity and difference between single and double-blind procedures and then explain why one may be more advantageous than the other: a) <i>similar feature – participants in both procedures are unaware of the particular condition or manipulation to which they have been allocated</i> ; b) <i>different feature – in a single-blind the experimenter is aware of the conditions participants have been allocated to, but in the double-blind the experimenter (or observer) is unaware of (i.e. is blind to) the conditions imposed on each participant</i> ; and c) <i>the double-blind procedure is more advantageous as it controls for any experimenter/observer bias or expectancy in measuring the dependent variable</i> . For part (c) students had to name the more advantageous procedure and explain their choice for 1 mark.