

2016 VCE Psychology examination report

General comments

The 2016 Psychology examination was a two-and-a-half hour examination that assessed Units 3 and 4 of the *VCE Psychology Study Design 2013–2016*. The exam consisted of three sections (A–C) and was scored out of a total of 140 marks. Section A comprised 65 multiple-choice questions worth 1 mark each. Section B comprised 14 short-answer questions worth a total of 60 marks. Section C entailed a research scenario worth 15 marks in total, comprising three short-answer questions worth a total of 5 marks, and an extended-response question worth 10 marks.

Most students provided a response to every multiple-choice question. Students should be aware that not only is it impossible to achieve a mark if no response is given, leaving a line blank also increases the likelihood that later answers on the computer-scored sheet will be out of synchronisation, and students may miss out on further marks. It is always possible to change a response by carefully erasing and re-shading. It is suggested that use of a ruler, moved down the page as each question is answered, will help to ensure that the correct response line is being completed.

As marking is completed online using scanned images of the examination paper, it is emphasised that students should write within the marked boundaries on the paper for each question and clearly indicate if a question is to be continued in the extra pages provided at the end of the question and answer book. If students continue a response in the extra space, they must number the response clearly.

Students should ensure that they address the questions asked and that any examples given are specific to the question. Where questions assess the application of knowledge to a scenario it is particularly important that students make clear and relevant references to the scenario in their responses. Generic responses to questions eliciting applied knowledge cannot be awarded marks. Students should also ensure that they attempt to answer all parts of each question.

Students are reminded that, although spelling errors are not penalised, the meaning of the response must be clear and unambiguous. Students should take care to spell scientific terms correctly.

Specific information

Note: Student responses reproduced in this report have not been corrected for grammar, spelling or factual information.

This report provides sample answers or an indication of what answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

The statistics in this report may be subject to rounding resulting in a total more or less than 100 per cent.

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	% No Answer	Comments
1	10	10	17	62	0	
2	93	4	1	2	0	
3	2	2	20	76	0	
4	69	4	3	25	0	
5	82	13	1	3	0	
6	3	46	20	31	0	On review, it was acknowledged that this question was ambiguous, so students were awarded a mark for any response.
7	1	3	38	57	0	Option C (Physiological memory traces fade over time due to the memories no longer being accessed) was correct because decay theory specifically proposes that memories leave a physical/physiological/neurochemical memory trace.
8	1	1	97	2	0	
9	19	57	22	2	0	
10	9	32	4	54	0	
11	4	50	4	41	0	
12	4	3	78	15	0	Both options C and D were marked as correct. The parasympathetic division of the autonomic nervous system regulates everyday bodily functions to maintain homeostasis (option D). Option C was also accepted as the parasympathetic nervous system (PSNS) is known to be involved in mood and arousal, and there is an association between depression and PSNS activity.
13	92	1	4	3	0	
14	2	9	12	78	0	
15	1	1	11	86	0	
16	0	0	1	99	0	
17	5	55	16	24	0	
18	7	1	86	7	0	
19	22	7	54	17	0	
20	86	3	6	4	0	

Question	% A	% B	% C	% D	% No Answer	Comments
21	3	90	2	4	0	
22	4	21	61	14	0	
23	10	24	20	46	0	The right temporal lobe is the area of the brain most involved in face recognition. The most common errors were that students confused either the side of the brain involved (option B, left temporal lobe) or the lobe (option B, right parietal lobe).
24	16	61	20	3	0	
25	23	5	62	10	0	
26	88	2	8	1	0	
27	31	9	56	4	0	
28	10	56	14	20	0	
29	56	3	37	4	0	
30	3	81	7	9	0	
31	4	7	27	61	0	The role of the executive is to orient attention to aspects of the task.
32	6	3	84	6	0	
33	4	9	86	1	0	
34	48	44	6	2	0	Although the original Little Albert study claimed to demonstrate generalisation of the conditioned fear of the white rat to a Santa Claus mask (and other white furry objects), the situation described in the scenario clearly indicated that the monkey required multiple pairings of the Santa Claus mask and the loud noise before demonstrating a conditioned fear response to the mask alone, despite having learned to fear the white rat previously. Stimulus generalisation occurs when the original learning produces an immediate fear response when a perceptually similar object is presented for the first time. Therefore, the monkey learning to fear the Santa mask after a number of pairings reflects the acquisition of a simple conditioned fear response, rather than stimulus generalisation.
35	6	18	57	19	0	

Question	% A	% B	% C	% D	% No Answer	Comments
36	15	28	16	41	0	Selection of option D demonstrated knowledge that the experiment described enables selective presentation of stimuli to either hemisphere, with content presented to the left side of the screen being projected to the right hemisphere and content presented to the right side of the screen being projected to the left hemisphere. Words are processed by the left hemisphere and pictures by the right. Therefore, the fastest word-reading responses would be made when a word was presented to the left hemisphere (right side of the screen, 'dog'), and the fastest picture-naming responses when a picture was presented to the right hemisphere (left side of the screen, 'hammer').
37	77	8	3	12	0	
38	24	2	73	1	0	
39	2	1	1	96	0	
40	18	63	1	17	0	
41	2	84	12	2	0	
42	1	11	5	84	0	
43	13	5	55	27	0	
44	5	1	93	1	0	
45	1	2	1	95	0	
46	8	8	73	11	0	
47	1	93	1	6	0	
48	3	89	2	6	0	
49	64	5	19	11	0	
50	18	7	46	29	0	The nodes in a semantic network store semantic knowledge, whereas the links between nodes represent the connections/pathways along which the knowledge stored at nodes can be retrieved, and the relationship between the concepts stored in the network (e.g. a clarinet is a type of wind instrument).

Question	% A	% B	% C	% D	% No Answer	Comments
51	8	31	34	27	0	When a node is activated, information spreads along the connections between nodes (spreading activation). The time required to retrieve information from a target node depends on the distance between it and the node at which the information required is represented. In the diagram provided, knowledge that a clarinet requires air blown through a reed is located directly at the clarinet node, so this will be the fastest response of the examples given. In all other cases, the required information needs to be retrieved from a node at another level of the network, taking more time.
52	26	51	11	11	0	
53	33	3	56	7	0	Option A (attention) was correct because the question asked why Phoebe chose the female captain as the model for her behaviour. In the stage of attention, the learner is more likely to attend to a model who has similar characteristics to the learner or who the learner admires. The scenario stated that the model had blonde hair like Phoebe and that Phoebe admired the captain. The stage of motivation (option C) refers to the learner being motivated to perform the learnt behaviour, which is not what the question was referring to.
54	2	86	12	0	0	

Question	% A	% B	% C	% D	% No Answer	Comments
55	29	9	20	42	0	<p>The question asked about Hayley's behaviour of having learnt which parent to ask, not about what form of conditioning had occurred. Hayley has learnt to discriminate between two antecedent conditions (parental moods), making option D (stimulus discrimination) the correct answer.</p> <p>In this scenario:</p> <ul style="list-style-type: none"> the antecedent/discriminative stimulus is the mood of the parent the response/operant behaviour is asking for the car the consequence is either getting the car (positive reinforcement) or not getting the car (removal of a desired stimulus = negative punishment/response cost) the rewarded behaviour is reinforced (asking the parent in a good mood), the punished/response cost behaviour (asking the parent in a bad mood) will not occur again parental mood is the stimulus that discriminates between the desired and non-desired outcomes. <p>Students who chose option A (response cost) or C (negative reinforcement) focused on the incorrect aspect of the scenario. While it is true that a response cost occurred when the parent in a bad mood denied use of the car, and that asking the parent in a good mood avoids this undesirable consequence (negative reinforcement), neither option related to the behaviour targeted by the question.</p>
56	9	6	14	71	0	
57	86	1	10	2	0	
58	1	30	18	51	0	
59	91	2	3	4	0	
60	34	2	62	2	0	
61	40	18	18	24	1	
62	3	89	3	4	0	
63	87	9	2	1	0	
64	11	82	4	3	0	
65	2	7	36	55	0	

Section B – Short-answer questions

Question 1

Marks	0	1	2	Average
%	44	38	19	0.8

Students were asked to identify one similarity and one difference between operant conditioning and social learning theory. The highest-scoring responses noted that both forms of learning rely on consequences (reinforcement and/or punishment) of voluntary behaviour, but that social learning occurs indirectly/via observation (or vicariously), whereas the consequences of behaviour are experienced directly in operant conditioning.

Other acceptable similarities included:

- The learner is active in both forms of learning.
- The learner is motivated in both forms of learning.
- Both rely on voluntary motor responses.

Another acceptable difference was that operant conditioning involves three phases of discriminative/antecedent stimulus, behaviour/response and consequence, whereas social learning involves five stages of attention, retention, reproduction, motivation and reinforcement.

Students needed to refer to both forms of learning when stating the difference between them, explicitly contrasting one with the other.

Question 2

Marks	0	1	2	Average
%	32	16	53	1.2

This question assessed students' knowledge of systems of classification of mental disorders (categorical versus dimensional approaches). Students performed relatively well, correctly identifying the method of classification used in the scenario as categorical and accurately identifying one disadvantage of this approach. Acceptable disadvantages of a categorical approach included:

- labelling can create social stigma
- does not evaluate the severity or degree of symptoms
- valuable clinical information can be lost as it does not consider the uniqueness of individuals
- shared features of different disorders can make them difficult to categorise.

Question 3a.

Marks	0	1	2	3	4	Average
%	13	21	22	12	33	2.3

The question elicited students' ability to apply knowledge relating to physiological measures of consciousness in healthy human participants using recordings from an electroencephalograph (EEG) and electromyograph (EMG). Students were given data in a table describing EEG and EMG measures for two groups of participants. They were asked to identify the state of consciousness that the participants from each group were likely to be experiencing based on these measures and to justify their answer.

One mark each was awarded for identifying the appropriate state of consciousness for each group, and one mark each was awarded for each valid justification.

The following is an example of a high-scoring response.

Participants in Group 1 were likely to be experiencing an altered state of consciousness/REM sleep as their EEG recordings showed fast, irregular, unsynchronised, low amplitude waves along with EMG recordings showing little or no muscle movement (that are typically associated with REM sleep).

Participants in Group 2 were likely to be experiencing an altered state of consciousness/slow wave sleep/Stage 3 or 4 sleep as their EEG recordings showed slow, regular, synchronised, high amplitude waves along with EMG recordings showing limited and irregular muscle movement (that are typically associated with slow wave sleep/Stage 3/Stage 4 sleep).

Question 3b.

Marks	0	1	2	Average
%	84	2	14	0.3

This question required students to describe what a typical electro-oculargraph (EOG) recording would show for each group.

Students were awarded one mark for each correct description of the EOG reading for each group.

The response needed to refer to the level of electrical activity rather than simply to ‘rapid eye movement’/‘no rapid eye movement’. A common error was that students needed to refer to the electrical activity of the muscles that control the eyes, rather than to the electrical activity of the eyes.

Another common error was that students referred to the EEG, EMG and EOG as recording brainwaves or muscle movements, rather than electrical activity from which brainwaves or muscle movements can be inferred.

The following is an example of a high-scoring response.

As participants in Group 1 are likely to be in REM sleep, an EOG would show high levels of electrical activity in the muscles that control eye movement (high frequency, low amplitude waves) indicating rapid eye movement.

As participants in Group 2 are likely to be in NREM Stage 3/Stage 4 sleep, an EOG would show very low electrical activity in the muscles that control eye movement (few waves/little electrical activity in the muscles around the eye) indicating little or no eye movement.

Question 4

A scenario was presented that described an experiment conducted by a teacher to investigate the effectiveness of narrative chaining as a mnemonic device.

Question 4a.

Marks	0	1	Average
%	37	63	0.7

Students were asked to provide an example of how the students would use narrative chaining to remember the list of words provided to the participant in the scenario. Students had to construct a sentence/story containing all five words from the scenario in the order they were presented.

The following is an example of a high-scoring response.

Sarah loved to eat sugar whilst sitting in a chair underneath a big tree. When she saw her mum's car come up the driveway, she ran inside to watch television.

Question 4b.

Marks	0	1	Average
%	55	45	0.5

This question asked students to outline the purpose of the control group in relation to the experiment described in the scenario. No mark was awarded if a generic definition of a control group was given without reference to the scenario.

The following is an example of a high-scoring response.

The purpose of the control group (who received no specific instructions for encoding) was to compare recall for words in the order presented between the (experimental) narrative-chaining group and those who were given no specific instruction for encoding.

Question 4c.

Marks	0	1	2	Average
%	14	45	40	1.3

This question asked students to refer to psychological theory to explain the likely outcome of the experiment. One mark was awarded if students identified an appropriate psychological theory/psychological construct. One mark was awarded for an accurate description of the likely outcome/prediction for this experiment derived from the theory/construct they identified.

Acceptable theories/theoretical constructs that could have been cited included either that the narrative/story provides retrieval cues to aid memory, or that it enables depth of processing or semantic encoding, etc., that would make retrieval of the words in the correct order more likely in the narrative chaining condition than in the condition in which no specified mnemonic strategy was used.

Question 4d.

Marks	0	1	2	Average
%	43	39	18	0.8

This question asked students to operationalise the dependent variable in the experiment. One mark was awarded for correctly identifying the dependent variable as memory/retrieval/recall of words in order. One mark was awarded for correctly operationalising the dependent variable as the number of words recalled in the correct order from the four lists.

Question 4e.

Marks	0	1	2	Average
%	35	10	55	1.2

This question asked students to describe which ethical consideration the teacher breached when he made the length of time spent in detention conditional on participation in the experiment.

One mark was awarded for identifying voluntary participation as the ethical breach. One mark was awarded for stating that the breach occurred because Mr Butler pressured/coerced the students to participate with an incentive (10 minutes early) and threatened a negative consequence if they refused (10 minutes extra detention).

The response 'withdrawal rights' was acceptable if students noted that this was because students could not withdraw freely (i.e. without penalty), having started the experiment. The response 'informed consent' was accepted if it was explained that Mr Butler would have needed to obtain parental consent before asking students to participate in the study.

Question 5

A scenario described Emilia's traumatic memory from childhood of being lost in a shopping centre and separated from her mother.

Question 5a.

Marks	0	1	2	Average
%	34	12	54	1.2

Students were asked to identify the specific type of declarative memory and to justify their response.

One mark each was awarded for:

- identifying episodic memory as the form of declarative memory
- stating that this was because the memory was for an event that Emilia had experienced and/or that it was an autobiographical memory.

Question 5b.

Marks	0	1	2	3	4	Average
%	24	4	15	19	39	2.5

This question assessed knowledge of the two temporal lobe areas involved in forming Emilia's memory of being lost in the shopping centre, and required an explanation of the role of each area in the formation of the memory.

Two marks each were awarded for:

- identifying the hippocampus and the amygdala as the two areas involved in the formation of this memory
- providing the correct role of each area, with the hippocampus being involved in encoding/storing/retrieving episodic/declarative memories, and the amygdala in encoding/storing/retrieving the fear/emotional response attached to that memory .

The highest-scoring responses for the role of the two areas in memory formation focused on their roles in encoding and/or consolidating memories (episodic/declarative for the hippocampus and emotional/fear memories for the amygdala). Other responses used phrasing such as 'involved in the storage of (the relevant memory type)', and these types of responses were accepted as the two structures are involved in the process of storing memories, as distinct from being the place of storage. Answers that said that the structures are the place where (the relevant type) memories are stored were not correct, as neither the hippocampus nor the amygdala are places of storage. Reference to either structure being involved in the retrieval of memories (of the relevant type) was

acceptable, given that retrieval-based learning is known to play an important part in the consolidation of memories.

Question 6

The question assessed students' knowledge regarding localisation of function in the brain and brain plasticity in relation to recovery from brain damage. A scenario described Stan (3 years old) and James (33 years old), both of whom sustained brain damage to the same area of the brain, resulting in difficulty with speaking fluently and moving the right arm.

Question 6a.

Marks	0	1	Average
%	24	76	0.8

This question asked students to name the lobe and hemisphere of the brain most likely damaged. One mark was awarded for identifying the left frontal lobe, demonstrating knowledge that the left frontal lobe is associated with the ability to produce fluent speech and houses the motor cortex, controlling movement of the right side of the body.

Question 6b.

Marks	0	1	2	3	Average
%	26	17	27	30	1.6

This question asked students to apply their knowledge of brain plasticity to explain why 3-year-old Stan is more likely to recover function faster and more fully than 33-year-old James.

Correct responses stated that:

- Stan's 3-year-old brain has the benefit of developmental plasticity (or access to both developmental and adaptive plasticity).
- James's mature brain will be limited in its recovery to the mechanism of adaptive plasticity.
- The processes of re-routing and sprouting in adaptive plasticity are less efficient than the ability to form new circuits, which occurs in developmental plasticity.

Question 7

Marks	0	1	2	3	Average
%	3	4	28	65	2.6

A scenario was described in which first-time mother Zahra received a number of forms of social support to assist with her role as a new parent. Students were asked to identify one source of social support from the scenario and to explain how it could reduce Zahra's stress response.

One mark was awarded for identifying either of the social supports described (Zahra's mother providing support, joining a council mothers' group). Two marks were awarded for the explanation of how the social support alleviates the stress response, with acceptable responses demonstrating both knowledge of what social support entails (e.g. emotional support, learning from others' shared experiences, etc.), and how this causes stress to reduce through changing appraisals of coping, allowing Zahra to sleep more, etc.

Question 8

This question elicited knowledge of localisation of brain function based on Sperry and Gazzaniga's work with patients who had undergone split-brain surgery, where the corpus callosum (the nerve tract connecting the two hemispheres) has been severed.

Question 8a.

Marks	0	1	2	3	Average
%	17	20	34	28	1.8

Students were asked to explain the most likely response a patient who has undergone split-brain surgery would give when asked to name an image of a toothbrush projected to their left visual field.

Correct responses stated that the patient would be unable to name the toothbrush because information presented to the left visual field is processed by the non-verbal right hemisphere and cannot be transferred to the verbal left hemisphere due to the severing of the corpus callosum.

Question 8b.

Marks	0	1	2	Average
%	32	4	64	1.3

This question asked students to identify how the same patient could identify the image of a toothbrush presented to the left visual field if their left hand was simultaneously placed inside a bag containing a toothbrush, a pen and a banana.

Marks were awarded for:

- demonstrating knowledge that the toothbrush cannot be named because the information is going to the right hemisphere (and corpus callosum severed)
- noting that the toothbrush could be identified by touch (by the right hemisphere/with the left hand and/or pulled out of the bag [with the left hand]).

Question 9

Marks	0	1	2	3	Average
%	37	33	22	8	1

The scenario stated that the Sunnydown Basketball League has 1500 players aged 12–18. The question asked students to explain how a researcher could design a random sampling procedure to investigate the effect of sports drinks on the performance of under-16 basketball players in the Sunnydown Basketball League.

Marks were awarded for:

- correctly identifying the population as the Sunnydown Basketball League players under 16
- identifying an appropriate random sampling method (e.g. drawing out of a hat)
- a description of how participants could be used to investigate the effect of sports drinks on performance.

Many students focused on random allocation to groups rather than random sampling.

The following is an example of a high-scoring response.

The researcher could put all the names of the Sunnydown under 16 basketball players in a hat, pull out names, and contact these players to participate (until the required number of participants was obtained). Players who agreed to participate could then be allocated (at random) into two groups, one using sports drinks and the other not/drinking plain water.

Question 10

Marks	0	1	2	3	Average
%	74	7	9	9	0.6

This question contained a scenario describing a number of stressors on Travis, who was undertaking his first year of university. The question asked students to identify one environmental stressor from the scenario and explain how it may exacerbate Travis's physiological response to stress.

Poor performance on this question was due to students failing to identify the environmental stressor from the scenario and/or failing to explain how this would affect the physiological aspects of the stress response.

Marks were awarded for:

- identifying the environmental stressor from the scenario. The only valid response based on information given in the scenario was the low temperatures in the coolroom at Travis's work
- identifying the potential effect of the environmental stressor on Travis's autonomic nervous system (i.e. physiological aspect of stress response)
- indicating that the change in the autonomic nervous system functioning would lead to an increased stress response.

Students tended to misinterpret the term 'environmental stressor' as a social/family environment stressor and so erroneously focused on the parental pressure to obtain marks at university and/or on the financial stressor to impress the girlfriend. Most students did not specifically reference the physiological aspects of the stress response, instead focusing on psychological aspects.

Environmental stressors are defined specifically as those aspects of the physical aspects of settings/surroundings that impact an individual, leading to physiological or psychological ill health.

The following is an example of a high-scoring response.

Working in the very cold temperatures of the cool room could increase the functioning of Travis's sympathetic nervous system, exacerbating the stress response.

Question 11

An operant conditioning scenario described Tim learning to cross at traffic lights only when the lights are green after being fined for crossing on a red light.

Question 11a.

Marks	0	1	2	3	4	Average
%	29	14	13	23	21	2

Students were asked to apply the three-phase model of operant conditioning to explain why Tim has learnt not to cross the road when the signal is red.

Marks were awarded for:

- correct identification of the antecedent/discriminative stimulus as the red traffic light
- correct identification of the behaviour as crossing the road
- correct identification of the consequence as the fine for crossing on a red light
- the explanation for how the consequence (fine) acts as a response cost (and/or [negative] punishment) for the behaviour of crossing on the red light.

Question 11b.

Marks	0	1	2	Average
%	42	20	38	1

This question referred to Tim's behaviour of repeatedly pressing the button at the crossing, being unaware that the signal follows a pre-programmed pattern to change every 90 seconds whenever the button is pressed at least once. The question asked students to refer to schedules of reinforcement to describe why Tim's strategy will not cause the pedestrian signal to change faster.

Marks were awarded for:

- identifying Tim's strategy as being based on a ratio schedule of reinforcement (i.e. based on the number of button presses) and the lights being on a fixed interval schedule (i.e. based a fixed 90-second time span between the initial button press and the change of lights)
- explaining that the fixed interval of 90 seconds defines when the light will change after the first button press, regardless of how many times the button is pressed in the interim.

The following is an example of a high-scoring response.

Tim's strategy is based on a ratio schedule of reinforcement. However, the lights operate on a fixed interval schedule of 90 seconds from the first button press, so repeated button pressing will not change the outcome.

Question 12

Marks	0	1	2	3	Average
%	7	27	56	11	1.7

The scenario described two teammates, Dominic and Jack, who played in the same football match on the weekend. The winning goal was kicked by a teammate two minutes before the siren. Thirty seconds later Dominic received a hit to the head in a tackle that knocked him unconscious for one minute. Jack did not sustain any injuries during the match. The question asked students to identify which of the two players was likely to recall the winning goal after the match, referring to consolidation theory to justify the response.

- One mark was awarded for identifying Jack as more likely to recall the goal (and/or Dominic as less likely).
- Two marks were awarded for the justification based on consolidation theory, with students needing to reference that the physiological/neuronal changes that occur during the process of consolidation (storing/strengthening/encoding) of memory were not interrupted for Jack (and/or were for Dominic).

Students tended to omit the information about the physiological changes that occur during consolidation.

Question 13

Marks	0	1	2	3	4	Average
%	33	12	16	15	23	1.9

Students were asked to describe an appropriate research technique to compare the relative sensitivity between two parts of the body, and how the results could demonstrate the relationship between cortical representation of body parts and relative sensitivity. Students were required to refer to two different parts of the body in their response.

Marks were awarded for:

- identifying two body parts that differ in sensitivity (e.g. finger versus elbow, lip versus thigh, etc.)
- describing an appropriate technique to demonstrate the difference in sensitivity at the two sites
- stating that the more sensitive site has greater density of sensory receptors than the less sensitive site
- linking the findings to our knowledge that the area of the somatosensory cortex devoted to any body part is proportional to the number of receptors at the body site, with more sensitive areas having a larger area of representation/more cortical area than less sensitive areas.

The following is an example of a high-scoring response.

To demonstrate the difference in cortical representation of the finger and elbow, a researcher could use two toothpicks to prick the participant's finger simultaneously when the toothpicks are 1 cm apart. The researcher would then ask the participant if they felt one prick or two. The process would then be repeated on the participant's elbow. The participant would be more likely report two pricks on the finger than the elbow because the finger has a greater density of pain (sensory and/or touch) receptors than the elbow and so has a greater area of somatosensory cortex devoted to it.

Question 14

Marks	0	1	2	3	4	5	Average
%	16	12	11	18	17	25	2.9

The scenario described Katrina and her dog Buster. On three consecutive days Katrina burned her toast for breakfast, setting off the high-pitched smoke alarm and causing Buster to startle and run away. Now, whenever Katrina uses the toaster, Buster runs outside and hides in the garden. The question asked students to use the terminology of classical conditioning to explain how Buster came to fear the toaster.

The five marks were awarded on the basis of students demonstrating the knowledge that a conditioned response (identified as Buster running away and hiding in the garden when the toaster is used) is learned as a result of repeatedly pairing a formerly neutral stimulus (identified as the toaster) with an innately fearful stimulus, referred to as an unconditioned stimulus (identified as the high-pitched noise of the smoke alarm). The unconditioned stimulus causes an innate/unlearned fear response, referred to as the unconditioned response (identified as Buster startling and running away), which then becomes the conditioned fear response.

To gain full marks the response needed to demonstrate knowledge of the critical mechanism of classical conditioning. That is, that repeated pairings of the formerly neutral stimulus with the unconditioned stimulus and unconditioned response causes the neutral stimulus to become a conditioned stimulus, producing the conditioned fear response without the presence of the unconditioned stimulus.

Section C – Research scenario

Students were provided with a research scenario that described a study undertaken by a researcher interested in studying the stress response at key times during the process of planning a wedding.

Question 1

Marks	0	1	Average
%	42	58	0.6

Students were asked to name the type of data collected in the questionnaire. The only response accepted was 'quantitative data'. Although the rating scale used in the study was subjective, the Likert scale quantifies the subjective ratings.

Question 2

Marks	0	1	2	Average
%	36	9	55	1.2

Students were asked to name the sampling procedure used and to identify one advantage of it. 'Convenience sampling' was the only acceptable response. 'Convenient sampling' was not accepted. Students are expected to know the correct terminology. Acceptable advantages included that participants are readily available or that it is time-efficient.

Question 3

Marks	0	1	2	Average
%	51	34	14	0.7

Students were asked to describe how debriefing may be undertaken for the data collection technique used in the study.

Marks were awarded for:

- an appropriate method of debriefing
- clearly linking the method of debriefing to the scenario.

No marks were awarded for generic responses.

The information provided in the scenario strongly constrained the range of acceptable responses. In particular, the scenario stated that participants were anonymous throughout the study, therefore, individuals who responded to all three questionnaires could not be contacted specifically at the end of the study; all participants would have to be contacted. Also, the scenario stated that the only contact information available to the researcher was the participants' mailing addresses. Therefore, the only possible method for debriefing was to mail participants.

It was not acceptable to say that individual participants could be mailed their own results, as the anonymous data collection method would make this impossible.

The following is an example of a high-scoring response.

Participants could be mailed a debriefing statement at the end of the study advising them where to obtain counselling if they are experiencing stress (or, informing them about the findings of the study, or, inviting them to attend a debriefing session, etc.).

Question 4

Marks	0	1	2	3	4	5	6	7	8	9	10	Average
%	10	7	9	14	16	20	12	8	3	1	0	4

Students were asked to evaluate the results obtained in relation to three specific considerations:

- the psychological determinants of the stress response
- the role of primary and secondary appraisal as informed by Lazarus and Folkman's Transactional Model of Stress and Coping
- the potential extraneous and/or confounding variables, including ways they could be minimised.

Evaluation entails making a critical appraisal of the data in relation to the three aspects specified by the question, and differs from demonstrating understanding or interpreting data. For this reason, the highest scores were reserved for responses that demonstrated true evaluation of the data rather than merely interpreting the data.

Sub-headings and dot-points were acceptable formats for responses.

Students who validly attempted all three aspects specified in the question were awarded at least five marks out of 10, with the awarding of higher marks being dependent on the level of critical appraisal and application to psychological theory demonstrated.

Evaluation of data entails first explaining/summarising the results (or some aspect of the results) and then giving consideration to the extent to which the data are adequate to inform us about the research question or theory. Students could have thought about this in terms of considering the strengths or weaknesses of the data for informing the research question or theory.

Students needed to demonstrate knowledge of Lazarus and Folkman's theory, especially in terms of the transactional nature of the psychological response to stress, and the two forms of cognitive appraisal (primary and secondary). The highest-scoring students demonstrated knowledge of specific terminology, especially in relation to the terms associated with primary appraisals of harm, threat, challenge or benefit, and secondary appraisal, including coping mechanisms (emotion-focused and problem-focused) and/or perception of ability to control/change the situation.

Students demonstrated knowledge of the term 'transactional' by referring to the perception or interpretation an individual has of a situation, noting that the stress response is determined individually in terms of the relationship between the person-level characteristics (appraisals), the context (e.g. SES, health status) and the specific environmental stressor.

When identifying extraneous/confounding variables, students needed to make suggestions that were relevant to the scenario, with the higher-scoring responses explaining how these might impact on the ability of the data to inform the research question/theory, and providing suggestions for improvement.

It was acceptable for students to structure their responses in different ways. For example, some focused first on demonstrating knowledge of theory and then moved on to evaluation of the data, followed by a discussion of limitations.

The points below reflect the range of points that were acceptable for students to raise in their responses to each element of the question. It should be noted that this list is not exhaustive and other valid issues may also have been raised.

Evaluation of results in relation to psychological determinants of the stress response

In responding to this element of the question, high-scoring responses:

- included an initial descriptive summary of the results (or selected aspects of the results), demonstrating knowledge of how to interpret the data in the table
- linked the results to the psychological determinants of the stress response, demonstrating knowledge of the concept of a transaction between person and environment, and the concepts of primary and secondary cognitive appraisals as applied to the data
- identified a strength of the research as the inclusion of four different stressors assessed over three time points, enabling change in the psychological determinants of the stress response to be assessed relative to the date of the wedding
- identified the stressors that seemed strongest, and the time points that seemed most salient in determining the level of stress for each, and the change in response for different stressors relative to the wedding date. For example, that the mean stress response was highest one week prior to the wedding (Stage 2), indicating that brides became more stressed closer to the date of the wedding.

Evaluation of results obtained in relation to the role of primary and secondary appraisal as informed by Lazarus and Folkman's Transactional Model of Stress and Coping

Students were required to demonstrate their knowledge of primary and secondary appraisal in relation to the Transactional Model of Stress and Coping, and to assess how effectively the results of the study inform us about these components of the model (i.e. to evaluate the results in relation to theory). The highest-scoring responses noted that the design of the study limited the ability to which the results could be clearly interpreted in relation to these components of the model.

To score highly, students needed to consider factors such as how effectively the manipulation of the three time points for completing the questionnaire related to primary and secondary appraisals, and how effectively the global stress rating that was used as the dependent variable enabled conclusions to be drawn about the role of primary and secondary appraisals.

Students demonstrated their knowledge of Lazarus and Folkman's Model by explaining that an individual's primary (i.e. initial) appraisal of a potential stressor (e.g. as harm/loss, challenge or benign/positive) will determine how they respond to the stressor, with the secondary appraisal reflecting the individual's assessment of their ability/resources to cope with the stressor, noting problem-focused and emotion-focused coping strategies. Students were required to relate this knowledge to the scenario, noting that each of the four stressors assessed in the questionnaire would first be appraised as one of threat, harm/loss, challenge or benign/positive. High-scoring responses noted that this primary appraisal would be influenced by factors in each bride's life. For example, a bride who was financing most of the wedding herself may be more likely to perceive the financial costs of the wedding as a threat or harm/loss and so would provide a higher stress rating for this item than a bride whose well-off family were financing the wedding. High-scoring responses also noted that the stress rating would be further influenced by the bride's secondary appraisal of her coping strategies to alter any perceived threat or harm/loss. The highest-scoring responses evaluated the data by noting that the single global measure of stress did not enable the influence of primary and secondary appraisals to be assessed independently. That is, primary and secondary appraisals were confounded in the single measure, which affected the validity of the measure of stress in relation to its ability to operationalise primary and secondary appraisals. For example, participants were not asked specific questions regarding the nature of their appraisal (threat, harm/loss, etc.), nor were they asked whether they felt they could control or influence the stressor.

Evaluation of the results obtained in relation to the potential extraneous and/or confounding variables, including ways they could be minimised

In responding to this part of the question, high-scoring responses noted two or more of the following points:

- Uncontrolled participant variables may have influenced stress ratings. Taking measures of factors such as age, SES, education level, mental and physical health status, etc., would enable the relationship between these variables and the stress response to be explored. This would also allow the impact of such individual differences on the stress response to be assessed separately from wedding-related stress.
- A single global measure of stress was used, which confounds primary and secondary appraisals and limits the ability to interpret the stress ratings at each time point. This does not separate wedding-related stress from other stressors that may be experienced.
- Convenience sampling was used, so the sample is unlikely to be representative of all brides, limiting the generalisation of results. This could be improved by sampling at a wider range of events.
- Completely anonymous responses meant that data for individuals could not be linked over time, limiting the data analysis to the group average, rather than being able to study how the stress response changed for individuals. To remedy this, the researcher could allocate each participant a number on their response form so that they remained anonymous, but their responses could then be linked over time.
- There were a number of dropouts, resulting in a loss of data and unbalanced numbers of participants for comparisons over time. Allocation of an ID number would enable the researcher to remove participants who did not return all three questionnaires, while maintaining anonymity.
- Initial stress ratings at the exhibition may have varied depending on how far away the bride's wedding was. To improve this, the researcher might only recruit brides whose wedding was, for example, 12–18 months away.
- Only the mean score for the group has been provided as a descriptive statistic, with no measure of variance (e.g. range or standard deviation), and no analyses were reported, so it is impossible to determine whether the observed changes in stress levels were significant and whether the observed differences between different stressors were significant.