CSE CENTRE FOR STRATEGIC EDUCATION

Leading educational thinking and practice

IARTV

PSYCHOLOGY

Written examination

2016

SUGGESTED ANSWERS

16PSYC12AS0

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SECTION A – Multiple Choice Answers 65 marks

1	**C**	10	**D**	19	**D**	28	**C**	37	**D**	46	**A**	55	**D**	64	**C**
2	**A**	11	**A**	20	**D**	29	**D**	38	**A**	47	**B**	56	**A**	65	**D**
3	**B**	12	**C**	21	**A**	30	**B**	39	**C**	48	**D**	57	**B**		
4	**C**	13	**C**	22	**C**	31	**D**	40	**B**	49	**A**	58	**A**		
5	**B**	14	**C**	23	**A**	32	**D**	41	**C**	50	**B**	59	**C**		
6	**C**	15	**A**	24	**C**	33	**A**	42	**B**	51	**C**	60	**C**		
7	**B**	16	**D**	25	**A**	34	**B**	43	**D**	52	**D**	61	**B**		
8	**D**	17	**D**	26	**C**	35	**C**	44	**D**	53	**C**	62	**B**		
9	**A**	18	**C**	27	**B**	36	**D**	45	**A**	54	**A**	63	**B**		

SECTION B – Short answer questions 60 marks

Question 1 (3 marks)

Explain why the patient in Sperry's split brain experiment was not able to name the objects flashed in her left visual field. In your answer include an explanation of the visual pathways, visual fields and hemispheric specialisation.

- Information goes from the left visual field to the right hemisphere
- Information needs to be transferred to the left hemisphere for the comprehension and production of speech
- This cannot occur because the corpus callosum is cut

Question 2 (4 marks)

Complete the table below that compares REM and NREM sleep.

	EOG	**EMG**	**The purpose of sleep according to the restoration theory**
REM sleep	Lots of eye movement/ rapid eye movement/ high EOG	Lack of movement/ paralysis of muscles/ low EMG	Restoration of the brain/ consolidating memories/ strengthening neural connections
NREM sleep	Gentle to very little rolling of the eyes	Very little movement	Repairing the body/ tissue growth and repair

Question 3 (4 marks)

Name and describe the two distinct brain waves that occur in Stage 2 NREM sleep.

1. Sleep spindle- burst of high frequency
2. K complex- burst of high amplitude

1 mark per correct entry

Question 4 (4 marks)

Compare the total sleep time and proportion of REM sleep in infants and older adults.

Infants – approximately 16 hours, 50% REM

Older adult – 6 to 7 hours, one third REM

1 mark for total sleep time, 1 mark for proportion of REM sleep.

Question 5 (8 marks)

Professor Chua designed an experiment that aimed to investigate whether narrative chaining increases memory. He used a convenience sample as he asked his first year university class to do the experiment. Professor Chua randomly allocated his students to two groups- one group learned a list of 10 words and were instructed to put them in a story and the other group learned the same list of words without any instructions. After 5 minutes he asked his students to write down as many words as they could remember on a blank piece of paper.

a. *Identify a weakness in the research design used and procedures to eliminate this weakness.*

A weakness of this design (independent groups) is that it is harder to eliminate participant extraneous variables. *1 mark*

We could eliminate this weakness by using a matched pairs or repeated measures design. *(1 mark)*

b. *Identify a weakness of the sample used and suggest a different sampling method that would overcome this weakness.*

A weakness of this sampling method (convenience) is that it is biased/unrepresentative. *(1 mark)*

We could eliminate this weakness by using a random/stratified sample. *(1 mark)*

c. *Variations of this experiment have asked participants to circle the 10 words they have learned from a list of 20 words. With reference to appropriate terms, how would this impact on retention levels? Explain your answer.*

If participants were to circle the 10 words they have learned from a list of 20 words, this would be using recognition rather than recall. *(1 mark)*

This is a more sensitive measure of retention and would improve memory. *(1 mark)*

d. Variations of this experiment have asked participants to recall the 10 words in a room different from the one in which they learned the words. With reference to appropriate terms, how would this impact on retention levels? Explain your answer. *(1 mark)*

If participants were to recall the 10 words in a room different from the one in which they learned the words this would not be allowing them to access context dependent cues (when the location prompts memory). *(1 mark)*

This may decrease their recall.

Question 6 (3 marks)

Describe a function of the following brain areas:

Amygdala – consolidation of emotional (fear) memories

Wernicke's – area- locating words from memory to express intended meaning/ interpreting speech

Auditory cortex – receiving and processing auditory (sound) information

1 mark per correct function

Question 7 (2 marks)

The visual cortex is located in the occipital lobe whereas Broca's area is located in the frontal lobe.

Question 8 (2 marks)

Name two structural changes that occur at the neuronal level when a memory is formed and learning takes place.

- Bushier dendrites
- Growth in axon terminals
- More synaptic connections form

1 mark per change

Question 9 (4 marks)

Complete the table below comparing classical and operant conditioning.

	Classical Conditioning	*Operant Conditioning*
Acquisition	Response is conditioned or learned through association of two stimuli (UCS and CS)	*Response is conditioned or learned through association of behaviour and consequence*
Extinction	The CR disappears after the UCS is no longer presented with the CS.	The response disappears after the consequence no longer follows the response.
Discrimination	Producing the CR to the CS but not to other stimuli that are similar to the CS.	*Responding to stimuli that will be reinforced but not to stimuli that won't be reinforced.*

Question 10 (11 marks)

Students in Ms Daniel's class are given a sticker every time they submit their homework by the due date. The stickers are displayed on a chart on the classroom wall. At the end of term, the stickers are tallied and the student with the most stickers gets a prize.

a. *Name the type of reward system that was used in class.*

Token economy. *1 mark*

b. *After a few weeks of continuous reinforcement, Ms Daniels finds her students are submitting their homework on time. She wants to stop giving a sticker every time homework is due because the stickers are very expensive. She decides to use a partial reinforcement. Would a ratio or interval schedule of reinforcement lead to the highest response rate? Why?*

A ratio schedule *(1 mark)* would lead to the highest response rate. This is because students would need to participate/do homework in order to achieve reinforcement. In an interval schedule they would just need to wait for reinforcement and not necessarily participate/do homework at all. *1 mark*

c. *Using the language of the three-phase model of operant conditioning, explain how the sticker charts were used to teach the students to submit homework on time. 3 marks*

- Stimulus -sticker chart, homework set
- Response - do HW on time
- Consequence - sticker

1 mark per explanation

d. The sticker chart uses positive reinforcement. Another type of reinforcement is negative reinforcement. Provide a similarity and a difference between these two types of reinforcements.

- Both **increase** desired behaviour. *(1 mark)*
- Negative reinforcement **takes away** a bad consequence whereas positive reinforcement **adds** a good consequence. *(2 marks)*

e. *In order to punish students, who are more than five minutes late to class, Ms Daniels issues a detention. Detentions are run every Saturday morning by the good looking and friendly Student Manager. Ms Daniels is surprised that the detentions are not decreasing lateness. Provide a reason why the detentions are ineffective and suggest one way to overcome this.*

Reasons for the ineffective nature of detentions:

- the delay between behaviour and consequence. The punishment needs to be immediate.
- the punishment is actually a reinforcer. The person supervising the detentions needs to be less appealing to students.

Question 11 (5 marks)

a. *The Diagnostic and Statistical Manual uses a multi-axial system. What does this mean and why is it important?*

- There are five different axes used when diagnosing a patient with a mental disorder and each axis refers to different information about the patient, for example,their present clinical disorder, their health, current environmental circumstances etc. *(1 mark)*
- This is important as it aims to provide comprehensive information about the patient and give a holistic view of the patient. *(1 mark)*

b. *The Diagnostic and Statistical Manual uses a categorical approach to classifying mental illness. What does this mean and what is one strength and one limitation of this approach?*

The categorical approach describes mental disorders in terms of different categories or labels, each with symptoms that are typical of specific mental disorders. *(1 mark)*

Advantages: This is useful in diagnosing mental illnesses and selecting appropriate treatment. **or** this enhances communication between health professionals by providing a common language. *(1 mark)*

Disadvantages: This involves labelling and labels can lead to social stigmas, prejudice and discrimination as people are often uncomfortable or embarrassed by behaviour that is different**. or** Once a person has been labelled then all their subsequent behaviour is interpreted in terms of that disorder. *(1 mark)*

Question 12 (10 marks)

Ita has recently sought asylum in Australia. She left her war torn country and her family and endured a risky journey to get here. She has been living in Australia for six months and has found it quite challenging because of language difficulties and occasional racial prejudice.

She was provided with housing when she first arrived but she now needs to find her own place to rent; however, she is not able to obtain work. She feels very stressed and overwhelmed by this problem, constantly worries about the future including finding enough money for housing and to send back home to her family.

a. *Some of Ita's stress can be attributed to acculturative stress. What does this mean? Is acculturation an example of a biological, psychological or social factor contributing to stress?*

Acculturative stress is defined as a reduction in health status. (including psychological, somatic and social aspects) of individuals. who are undergoing **acculturation –** it refers to the stress Ita is experiencing when trying to adapt to a new country or culture. This is an example of a social factor. *(2 marks)*

b. *In terms of primary appraisal in Lazarus and Folkman's transactional model of stress and coping, how has Ita appraised this situation? Explain your answer.*

Ita has appraised it as a threat. *(1 mark)* She worries about the damage or harm that may occur in the future. *(1 mark)*

c. *Would Ita's stress be classified as eustress or distress? Explain your answer.*

Distress. *(1 mark)* Her stress is negative and involves worry and anxiety. *(1 mark)*

d. *Ita's stress is prolonged and may have activated the HPA axis. Explain what physiological changes Ita may have experienced with reference to each part of the HPA axis.*

The hypothalamus *(1 mark)* activates the pituitary gland *(1 mark)* which then stimulates the adrenal cortex *(1 mark),* Cortisol *(1 mark)* is released resulting in increased energy and heightened arousal.

SECTION C – Research scenario 15 marks

Instructions for Section C
Answer all questions in the spaces provided. Write using blue or black pen.
Your responses may include diagrams, charts and tables

Mr Message is interested in studying the effects of crowding on stress levels. He works at a local secondary college and selects his Year 9 History class to participate in the study. Students are asked if they wish to take part in the study and agree.

Mr Message taught his class on Thursday under very crowded conditions, whereby students were in a very cramped and small room and had to share a chair and desk. He taught his class again on Friday when the classroom was what he considered to be reasonably comfortable, that is, each student had their own desk and chair and it was a big classroom

Students were asked at the end of both classes to rate their levels of stress on a ten point scale- where one was 'not very stressed' and ten was 'very stressed'.

The mean stress rating for each class is presented in the table below.

Class	*Mean stress rating*
Thursday	*8*
Friday	*4*

The level of significance was set at 0.05. A statistical analysis yielded p = 0.03.

Question 1 (2 marks)

Provide two reasons why this study is an experiment.

- It is testing a hypothesis under controlled conditions to explore the effect of an independent variable on a dependent variable.
- The levels of the independent variable are directly manipulated/controlled by the investigator.
- The dependent variable is clearly operationalised.
- There is an experimental and a control group.

1 mark per reason – 2 marks in total

Question 2 (3 marks)

Write a research hypothesis.

Students from Mr Message's local secondary college experienced a higher level of stress when learning in the crowded and cramped classroom as compared to the non-crowded and comfortable classroom.

Refer to population, IV (both conditions) and DV.

Question 3 (4 marks)

a. *According to the p value is this study statistically significant? What does this mean? 2 marks*

The results are statistically significant *(1 mark)* This means there is only a 3% probability that results were due to chance and a 97% probability that the DV has been caused by the IV *(1 mark)*.

b. *Would you classify the p value as an inferential or descriptive statistic? Explain your answer.*

Inferential *(1 mark)* – this means we can infer whether we can make judgements about the results, draw vaild conclusions and generalise the results *(1 mark)*

Question 4 (6 marks)

Write a possible method section for an experiment that aims to collect data on the effect of meditation in reducing stress. Use appropriate conventions of psychological report writing.

In your response include the following:

- *Participants (including sampling and allocation procedures)*
- *Procedure (including research design and ways of controlling extraneous variables)*

An example (any sample or research design to be used)

Participants (including sampling and allocation procedures)

- Random sample.
- Participants were selected at random by selecting 50 names out of a hat from a population of 200 adults at a meditation course.
- No allocation to groups was needed as this was a repeated measures design.

Procedure (including research design and ways on controlling extraneous variables)

- A repeated measures design was used.
- Participants meditated for one week and filled out a self-report on stress. Then participants did not meditate for one week and filled out a self-report on stress.
- This overcomes any participant extraneous variables because it uses the same participants.