



## *Units 3 and 4 Psychology*

*Practice Exam Solutions*

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Any questions?

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## *Section A – Multiple-choice questions*

### **Question 1**

The correct answer is C. A and B are both wrong because daydreaming is a naturally occurring phenomena hence is not an induced state of consciousness.

### **Question 2**

The correct answer is D.

### **Question 3**

The correct answer is C. This is because REM sleep is associated with restoring the mind whilst asleep whereas NREM sleep is associated with restoration of the body. Hence C is the only sensible answer.

### **Question 4**

The correct answer is C. This is because the experience of time may differ for each individual depending individual differences and the amount of alcohol consumed.

### **Question 5**

The correct answer is B.

### **Question 6**

The correct answer is C. A and D are wrong as young children and babies spend a higher proportion of sleep in REM due to brain development of the young child. B is also incorrect as the adult is missing REM sleep meaning their body will try to accommodate for this by spending a greater proportion of the next night in REM sleep.

### **Question 7**

The correct answer is D.

### **Question 8**

The correct answer is A. This is because throughout the night the amount of time spent in REM sleep throughout each sleep cycle increases. As REM sleep is where a majority of dreaming occurs the amount of time spent dreaming will be proportional to the amount of time spent in REM sleep.

### **Question 9**

The correct answer is D.

### **Question 10**

The correct answer is C. This is a characteristic difference between sleep in adolescents and adults and is most likely due changes in the time that melatonin is produced in adolescents.

### **Question 11**

The correct answer is B.

### **Question 12**

The correct answer is D.

### **Question 13**

The correct answer is B. A and C are both wrong as the areas for comprehending and producing speech are found in the left hemisphere. D is wrong due to the lateralisation of the brain which means the left side of the brain controls the right side of the body and the right side of the brain controls the left side of the body.

**Question 14**

The correct answer is C. Severing of the corpus callosum prevents communication between the two hemispheres hence for speech to be produced an object must be shown to the right visual field hence A and B are wrong. D is also incorrect as the object is shown to the right visual field they would only be able to pick up the object with their left hand.

**Question 15**

The correct answer is B. Production and articulation of speech is the role of Broca's area.

**Question 16**

The correct answer is D.

**Question 17**

The correct answer is C.

**Question 18**

The correct answer is B. The hippocampus is responsible for the formation and retention of memories.

**Question 19**

The correct answer is C.

**Question 20**

The correct answer is C. Episodic memories about one's life are the first memories to be affected by the ageing process.

**Question 21**

The correct answer is B.

**Question 22**

The correct answer is A.

**Question 23**

The correct answer is C. Because to initially transfer information from sensory to short term memory attention to the incoming information is needed. In order to keep this information in short term-memory rehearsal is required.

**Question 24**

The correct answer is D.

**Question 25**

The correct answer is A. The stronger the neural connections between neurons the faster information can be retrieved.

**Question 26**

The correct answer is A. This is because the old information of Zahara's teacher being called Ms Williams interferes with the encoding of the new information regarding the change of the teacher's name to Mrs Gardiner.

**Question 27**

The correct answer is B.

**Question 28**

The correct answer is C. A, B and D are all incorrect as they provide a stimulus for recall making revival easier whereas free recall does not and thus is the first to decline.

**Question 29**

The correct answer is B. Repression unlike suppression is unconscious and blocks remembered information from normal waking consciousness.

**Question 30**

The correct answer is B. Saving score indicates the amount of time or effort saved from having previous learning that can be drawn on to improve learning time. Saving score can be calculated by: ( number of original trials) - ( number of trails for relearning) / ( number of trails for original learning) X 100

**Question 31**

The correct answer is B. C and D are both wrong as the delay in recall by counting would have prevented Lee from retaining the end of the list in her short term memory.

**Question 32**

The correct answer is D.

**Question 33**

The correct answer is A.

**Question 34**

The correct answer is C. As this is the changing variable between the two year levels.

**Question 35**

The correct answer is D.

**Question 36**

The correct answer is B.

**Question 37**

The correct answer is A.

**Question 38**

The correct answer is C. The amygdala is involved in immediate emotional responses such as fear.

**Question 39**

The correct answer is A. This is because rerouting and sprouting are processes that are found in adaptive plasticity.

**Question 40**

The correct answer is C.

**Question 41**

The correct answer is D.

**Question 42**

The correct answer is C.

**Question 43**

The correct answer is A.

**Question 44**

The correct answer is B.

**Question 45**

The correct answer is C.

**Question 46**

The correct answer is A. This is because the negative stimulus of noise is being removed thus the teachers behaviour of allowing students to use their iPods is reinforced.

**Question 47**

The correct answer is B.

**Question 48**

The correct answer is B.

**Question 49**

The correct answer is D.

**Question 50**

The correct answer is A. Is correct as it is the only answer in which the learner watches how someone else performs the activity before they attempt it themselves.

**Question 51**

The correct answer is C.

**Question 52**

The correct answer is C.

**Question 53**

The correct answer is C.

**Question 54**

The correct answer is D.

**Question 55**

The correct answer is A.

**Question 56**

The correct answer is B.

**Question 57**

The correct answer is B.

**Question 58**

The correct answer is A.

**Question 59**

The correct answer is C. A and D are incorrect as both of these would not be helpful to Joe's fight to flight response. C is the correct answer as a dilation in bronchial passages allows Joe to get more oxygen to working muscle and therefore to respond more effectively in the situation.

**Question 60**

The correct answer is B. B is correct as the hormones that act to cause the physiological responses in the fight or flight response are a lot faster acting than the hormones and other factors used by the parasympathetic nervous system to bring the body back to resting levels.

**Question 61**

The correct answer is A.

**Question 62**

The correct answer is B.

**Question 63**

The correct answer is B.

**Question 64**

The correct answer is C.

**Question 65**

The correct answer is A.

## Section B – Short-answer questions

Marks allocated are indicated by a number in square brackets, for example, [1] indicates that the line is worth one mark.

### Question 1

- Similarity: Both occur during stage 2 of NREM / both are brief (1-2 seconds)
- Difference: Sleep spindle: rapid increase in frequency. K complex: sudden burst in amplitude.

### Question 2a

- EOG – detects, amplifies & records electrical activity of the muscles that control eye movements. [1]
- A high level of electrical activity would indicate REM sleep (rapid eye movement) a low level of electrical activity would indicate NREM sleep i.e. slow rolling eye movements. [1]

### Question 2b

- An EMG detects, amplifies and records the levels of muscular tone or tension. [1]
- Higher levels of muscular tone and tension would indicate NREM sleep, lower levels would indicate REM sleep. [1]

### Question 3a

The replenishment of muscular energy stores and general physical restoration is reduced, thus Randy may feel fatigued. [1]

### Question 3b

- Randy may become more tense, irritable and anxious than patients who slept for the same amount of time, but weren't REM deprived. [1]  
or
- His memory consolidation is impaired. [1]  
or
- He may have feelings of insecurity. [1]  
or
- He may have an inability to regulate body temperature. [1]

### Question 3c

- Randy would typically experience REM rebound. [1]
- He would probably spend a greater amount of time spent in REM than during a normal sleep e.g. 4 hours of REM instead of the normal 2 hours for an adult. [1]

### Question 4

- Because the patient is unable to verbally describe the image it is likely the image was shown to the left visual field hence this information would be processed in the right non-verbal hemisphere.
- Information cannot be transferred to left verbal hemisphere, due to severing of corpus callosum. Thus the patient is unable to verbalise the name of the object (apple). [1]
- As the left visual field controls bodily movement on the right side, the patient would be able to reach out and touch an apple with their right hand to identify what they had seen. [1]

**Question 5**

- Alzheimer's disease. [1]
- Tangles become visible on the outer regions of the brain. These are tangled neural fibres. [1]
- Dense deposits of plaque build-up on the brain. These are neurotoxic substances made of amyloid protein. [1]
- The amount of acetylcholine present in the brain decreases, indicating that the neurons are producing and releasing less neurotransmitters. Thus decreasing in function. [1]

**Question 6**

- The consolidation of the memory of the game was interrupted (the hippocampus was affected). [1]
- The memory trace was unable to form, there wasn't enough time for the memory to form (due to the interruption). [1]

**Question 7**

Implicit memories: information is recalled without conscious effort (the information cannot be consciously recalled or explained to another person) e.g. hitting a backhand in tennis. [1]

Explicit memories: information needs to be recalled via conscious effort (and is easily verbally declared to another person) . e.g. What year did Julia Gillard become the P.M of Australia? [1]

**Question 8**

Izzy's **phonological loop** [1] sub-vocally rehearses the next part of her explanation; her **visuo-spatial sketchpad** visualizes [1] the next part of route (in her explanation) the **central executive** [1] directs the **episodic buffer** [1] to combine the verbal part of the speech (from the phonological loop) with the visual part of the slides (visuo-spatial sketchpad).

**Question 9**

- Shallow processing; looking at the structure of the words such as noting which ones start with vowels, e.g. air and old. [1]
- Intermediate processing; usually involves connecting word by how they sound such as creating a rhyme for each word e.g. house – mouse. [1]
- Deep processing; assigning meaning to the information by putting each word in a sentence, e.g. once the car was in MOTION, the driver needs to be aware of the traffic conditions. [1]

**Question 10**

Similarity: both occur as a result of adaptive plasticity (i.e. changes in brain structure as a result of damage or every day experience). [1]

Difference: Rerouting is when a neuron with a damaged connection seeks out and connects with an active neuron, whereas sprouting involves the growth of dendritic fibres to enable a neuron to form new connections with other active neurons. [1]

**Question 11**

Experience expectant learning refers to genetically structural modifications that occurs early in life that the brain 'expects' and is primed for as a result of the environmental experience (that occur for predominately all members of a species). E.g. the brain expects to be exposed to visual images, sounds, etc. in order for our visual, auditory, etc. systems to develop. [1]

Experience dependent learning - refers to additional (unique) skills developed over the lifespan (that the brain doesn't expect be exposed to) hence rely on exposure to environmental stimuli e.g. a young Eskimo learning the skills of igloo building through observing the actions of their parents when constructing an igloo. [1]



**Question 12**

Due to the unpredictability of the timing of the reinforcer, the learner anticipates that the reinforcer is due shortly and that it could occur after the next trial. Making the behaviour very hard to extinguish.

e.g. Poker machines, the gambler will keep putting money in the machine, in anticipation that a reward is due shortly, thus their motivation remains high to continue the gambling behaviour in anticipation of a 'win'.

**Question 13a**

- Discriminative stimulus: Tehanee being rostered on for a 5.00pm start. [1]
- Operant response: Tehanee arrives late for her shift. [1]
- Consequence: being docked \$7. [1]

**Question 13b**

Response cost / Negative punishment [1]

The cost (\$7 pay deduction) of Tehanee's (response) is aimed at reducing her targeting behaviour by removing a positive stimulus (in this case money). [1]

**Question 14**

- Repeatedly pair an unpleasant stimulus (UCS), for example a nausea inducing drug, with the harmful behaviour (cigarette smoking in this case). [1]
- Pair the nausea inducing drug (UCS) with cigarettes (NS) multiple times. This will result in nausea being experienced to the cigarette's alone(UCR). [1]
- This will condition the individual to feel nausea (CR) when they see/ smell a cigarette (CS). [1]

**Question 15**

A functional approach refers to the ability of an individual to carry out their day-to-day tasks. [1]

For example, an adolescent (aged 15 or less) who is unable to attend school due to a mood disorder would be deemed abnormal as school would be classified as a normal day to day activity for a 15 year old. [1]

**Question 16**

- Axis 1 - Clinical disorders: can be successfully treated and generally only present for part of a patient's life e.g. an anxiety disorder. [1]
- Axis 2 - Personality and intellectual disorders: are generally present for the duration of the person's life e.g. borderline personality disorder. [1]

**Question 17a**

The biopsychosocial framework looks at the interaction of the biological, sociocultural and psychological influences in the diagnosis of a mental illness and management. [1]

**Question 17b**

- This approach considers each patient differently by addressing the influence of the interaction between the biological, psychological and social factors that have influence a patient's mental health. Therefore providing a more holistic approach to addressing mental health. [1]  
OR
- Rather than being purely a medical model, it is a functional model of health and wellbeing. [1]

**Question 18a**

- Activation of Chantelle's allostatic systems, such as the HPA axis (Hypothalamus, Pituitary gland, Adrenal gland) & Sympathetic N.S., cardiovascular system and the immune system. [1]
- Initiates a state of physiological arousal to help deal with the demands of a stressor (her husband's injury), the body will continue to release stress hormones whilst we are under stress. [1]

**Question 18b**

- Chantelle might eventually get to the point of allostatic load, which refers to the cumulative cost to the body of allostasis which can occur due to continuous activation of the fight-flight response.
- Thus the brain's appraisal of the stressor plays a major role in the body's response.
- Which can diminish effectiveness of Allostatic response.
- Her immune system will work less effectively due to constant release of stress hormones such as cortisol.
- This can result in decreased efficiency in the initiation and termination of the allostatic response.
- Thus potentially influencing a variety of physical disorders including cardiovascular diseases, obesity, etc. or mental disorders e.g. depression.

[1 mark for the first point and any of the other points]

**Question 19a**

Whether or not the demands placed on Dwayne exceed his coping resources, if so he is likely to become stressed. [1]

**Question 19b**

- Emotion-based coping strategies would be used when Dwayne thinks that he can't manage the problem and he can't cope with the stress of dealing with the event that is occurring e.g. avoiding, distancing, acceptance, disclaiming, denial, etc.
- Problem-based coping would be used when Dwayne feels that he can manage and cope with the problem e.g. generating alternatives to working out where he will complete his VCE.

[1 mark for each explanation, 1 mark for 2 suitable examples]

**Question 19c**

- Tangible assistance e.g. help with textbooks, uniform for a new school.
- Appraisal support – a third party helping Dwayne work out alternative courses of action for his VCE.
- Emotional support.
- Information support .

**Question 20**

1. Amandine could be given information about an autonomic physiological response such as muscle tension in her neck determined via an EMG. [1] She could also use other physiological responses such as heart rate.
2. She then uses learned strategies e.g. calming thoughts or meditation to help her lower her stress response. [1]
3. She could then use these strategies to make a notable difference in her muscle tension in her neck giving her direct feedback of how successful she was at using learned strategies such as calming thought to reduce stress levels. She would be hoping to see lowered electrical activity of the muscle tension in her neck as measured by the biofeedback device (EMG). [1]

## Section C – Research scenario

### Question 1

- Operationalised DV: The score obtained out of a possible 100 on the stress-levels stress inventory test. [1]
- Operationalised IV: Whether the subjects were subjected to 4 weeks of Biofeedback or 4 weeks of Aerobic exercise for 20-30 minutes a day to combat the effects of stress. [1]

### Question 2

First year psychology students at Gypsy University. [1]

### Question 3

- Placebo effect: the actions of the participants may affect the DV due to their expectations of the outcome of the experiment as a result of their awareness of which group they are in (control or experimental group).
- Experimenter effect: refers to the actions of the experimenter in terms of the instructions given to the participants or the treatment of the data which may affect the DV due to their knowledge of the composition of the groups (control and experimental groups).

### Question 4

- A p value: 0.00714 means that there was only a 0.71% probability that the results obtained in the experiment were due to chance. [1]
- Statistical Conclusion: As the p value is 0.00714, the results are statistically significant (as  $p < 0.05$ ). [1]
- Conclusion statement: Based on the results of the experiment, Biofeedback is a more effective technique in managing stress levels in comparison to exercise. [1]
- These results could not be generalized to the wider population due to a lack of consistency and reliability. For example, there is an age bias and participants are only from one university. [1]

Weaknesses of experimental design (choose four of the following):

- The experimental design did not match pairs on key traits that could affect the dependent variable thus there is participant difference that could potentially effect the results of the experiment e.g. current exercise regime or previous exposure to strategies to control physiological responses, such as meditation. [1]
- Non random selection: i.e. the use of volunteers. [1]
- Lack of uniformity during the program, i.e. students were unsupervised for the majority of the program, thus there level of application could have varied. [1]
- Subjectivity of self-rating – lacks reliability as results cannot easily be compared. [1]
- Testing didn't take into account other factors that could have affected stress levels e.g. outside social factors such as family and relationship problems that may have coincided with testing dates. [1]
- Potential placebo effect – for biofeedback group in particular. [1]

Procedures to eliminate these weaknesses (choose any two of the following):

- Use a repeated measures design [1] to eliminate participant related variables as each experimental condition will be experienced by the same people. [1]
- Test a greater cross section of the community [1] as the sample will therefore be more likely to fairly represent the population. [1]
- Complete multiple stress levels tests at different times of the year [1] in order to reduce the impact of potential extreme results that reflect stress levels at a moment in time rather than longitudinally. [1]