



INSIGHT

Year 12 Trial Exam Paper

2013

PSYCHOLOGY

Written Examination

Sample answers

This book presents:

- high-level sample answers
- explanatory notes
- mark allocations
- tips and guidelines

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Section A – Multiple-choice questions

Question 1

Answer is C

Explanatory notes

A and B are incorrect because when using focused selective attention, we focus our thoughts on one thing, and this occurs in normal waking consciousness (NWC).

C is correct. Daydreaming is an altered state of consciousness (AWC) where we allow our thoughts to drift over a variety of topics, none of which demand selective attention.

D is incorrect. Daydreaming is an AWC, not NWC.

Question 2

Answer is A

Explanatory notes

A is correct because when daydreaming, the content of conscious thought is unlimited and likely to be less logical than in focused selective attention.

B is incorrect as content is likely to be less logical in an ASC.

C and D are incorrect. Content is more limited in NWC and more logical.

Question 3

Answer is D

Explanatory notes

A is incorrect. Automatic processes and divided attention are used when we perform a well-learned task.

B is incorrect. Divided attention is used with automatic processes, but controlled processes would be necessary in this situation.

C is incorrect. See the explanation for A.

D is correct. As Gareth is still learning to drive, he would need to focus selectively and use controlled processes.

Question 4

Answer is C

Explanatory notes

A is incorrect as lack of emotional awareness is demonstrated via heightened or dulled emotional responses.

B is incorrect as Felicia could hear what the caller was saying, which means perception was not impaired.

C is correct because making sense of sounds (understanding) is a cognitive function.

D is incorrect as there is nothing to suggest that Felicia experienced time distortion.

Question 5

Answer is A

Explanatory notes

A is correct as alcohol slows the nervous system and would thus reduce response times.

B is incorrect as water would not affect the nervous system and response times.

C is incorrect as those ingesting alcohol would likely be less inhibited than those who drank water.

D is incorrect as C is incorrect.

**Tip**

- *This is an example of why it is very important to carefully read all alternatives and eliminate the incorrect responses before selecting the correct answer. A hasty decision here may have caused you to choose D or C, which are both incorrect.*

Question 6

Answer is B

Explanatory notes

A is incorrect. The reaction time was measured, but this is not an operationalised dependent variable (DV).

B is correct. The DV is operationalised in terms of reaction time to a red light on the driving simulator.

C is incorrect. This is the operationalised independent variable (IV).

D is incorrect. This is the non-operationalised IV.

Question 7

Answer is B

Explanatory notes

A is incorrect. The participants were not matched on participant characteristics before being allocated to groups.

B is correct. The sample was divided into two groups, one of which was exposed to the IV while the other was not.

C is incorrect. There were two distinct groups used; the participants were not all exposed to both levels of the IV and the DV.

D is incorrect. Stratified sampling is a sampling method, not an experimental design.

Question 8

Answer is C

Explanatory notes

A, B and D are all incorrect answers as they are all advantages of video monitoring when observing sleeping individuals.

C is correct. This is a possible disadvantage of video monitoring.

Question 9

Answer is D

Explanatory notes

A is incorrect as this is achieved via the use of electromyography.

B is incorrect as this is achieved via the use of electroencephalography.

C is incorrect as this is achieved using electrodes attached to the skin.

D is correct. Electro-oculargraphy is used in a sleep laboratory to measure the movements of the eye muscles during sleep by detecting, amplifying and recording electrical activity in the muscles that control the eyes.

Question 10

Answer is B

Explanatory notes

A is incorrect as protein synthesis is related to REM sleep.

B is correct. The release of growth hormones tends to be greater during stages 3 and 4 NREM sleep. Therefore loss of this type of sleep will mean fewer growth hormones are released.

C is incorrect. Deprivation of REM sleep has been linked to mood disturbances.

D is incorrect. The metabolic rate tends to slow during stages 3 and 4 NREM sleep.

Question 11

Answer is A

Explanatory notes

A is correct. Adolescents tend to fall asleep at a later time than in late childhood or adulthood.

B is incorrect. See the explanation for A.

C is incorrect. Adolescents need more sleep than adults.

D is incorrect. Adolescents need around 9–10 hours of sleep per night.

Question 12

Answer is A

Explanatory notes

A is correct. The outer layer of the brain, known as the cerebral cortex, is responsible for higher-order cognitive processes, such as thinking, planning, remembering, etc.

B is incorrect. The cerebellum is a structure of the hindbrain.

C is incorrect. The central nervous system consists of the brain and the spinal cord. Cognitive processing occurs in the brain alone.

D is incorrect. The cortex is an incomplete term. Cerebral cortex is a better response.

Question 13

Answer is B

Explanatory notes

A is incorrect. Kayne is likely to fall asleep quite easily.

B is correct. Following a period of sleep deprivation we are likely to experience longer periods in REM sleep when we are finally able to sleep.

C is incorrect. See the explanation for B.

D is incorrect. REM rebound affects REM sleep, not NREM sleep.

Question 14

Answer is C

Explanatory notes

A is incorrect. REM sleep occurs when we are fully asleep, mostly in the later part of a sleep cycle.

B is incorrect. NREM sleep is experienced during stages 1 and 2 sleep, and mixed with periods of REM sleep during stages 3 and 4 sleep.

C is correct. Microsleep is a brief period of sleep that occurs during wakeful activity.

D is incorrect. Stage 1 sleep is the period of light sleep that is experienced as we begin to drift off to sleep and is part of the normal sleep cycle.

Question 15

Answer is D

Explanatory notes

A, B and C are incorrect as these are automatic functions controlled by the autonomic nervous system.

D is correct. The skeletal muscles are controlled by the somatic nervous system.

Question 16

Answer is C

Explanatory notes

A is incorrect. The sympathetic nervous system is responsible for the response, not the parasympathetic.

B is incorrect. The autonomic nervous system contains the parasympathetic and sympathetic nervous systems but this is not the best description of the response.

C is correct. The sympathetic nervous system triggers the response. Following the release of pituitary hormones from the pituitary gland, the adrenal glands are stimulated to release cortisol and adrenalin, and the cardiovascular and respiratory systems are also stimulated.

D is incorrect. See the responses for A and C.

Question 17

Answer is B

Explanatory notes

A is incorrect. The cerebral hemispheres are the two halves of the brain, separated by the longitudinal fissure, each a mirror image of the other.

B is correct. The central fissure is a deep groove that runs across the top of the brain and down the sides, and separates the anterior from the posterior.

C is incorrect. The corpus callosum is the thick band of fibres that joins the two hemispheres below the longitudinal fissure.

D is incorrect. The longitudinal fissure is the deep groove that separates the two cerebral hemispheres and runs from front to back.

Question 18

Answer is D

Explanatory notes

A is incorrect. The cerebral cortex comprises of the primary cortices (motor, visual, somatosensory and auditory) and association areas, and it is the primary cortices that take up one-quarter (25 percent)

B and C are incorrect. See the explanation for D.

D is correct. As the primary cortices take up one-quarter of the cerebral cortex, that means association areas take up the remaining three-quarters (75 percent).

Question 19*Answer is D***Explanatory notes**

A is incorrect. The temporal lobes are below the parietal lobes, and between the frontal lobes and occipital lobes.

B is incorrect. See the explanation for A.

C is incorrect. The frontal lobes are separated from the occipital lobes by the temporal lobes.

D is correct. At the rear of the frontal lobes is the primary motor cortex, and this is adjacent to the somatosensory cortex, which is at the front of the parietal lobes.

Question 20*Answer is A***Explanatory notes**

A is correct. Approximately 95 per cent of the population has association areas for language located in the left hemisphere.

B, C and D are incorrect. See the explanation for A.

Question 21*Answer is B***Explanatory notes**

A is incorrect as motor movement is not controlled from the temporal lobes.

B is correct. The damage is most likely to be located in the right frontal lobe as this area controls motor movement in the left side of the body.

C and D are incorrect. See the explanations for A and B.

Question 22*Answer is D***Explanatory notes**

A is incorrect. The frontal lobe does not process sensation. Sensory information from the left side of the body is processed in the right somatosensory cortex.

B is incorrect. The sensation of burning in the left hand will be processed in the right parietal lobe.

C is incorrect. See the explanations for A and B.

D is correct. The sensation of burning in the left hand will be processed in the somatosensory cortex in the right parietal lobe.

Question 23

Answer is C

Explanatory notes

A is incorrect. Transmission occurs in the photoreceptors at the back of the retina, so this function would not be impaired.

B is incorrect. The eye itself is not damaged. Information shown in the left visual field will be received on the right side of each retina and processed in the right occipital lobe.

C is correct. Damage to the left occipital lobe will likely impair the processing of visual information from the right visual field.

D is incorrect. An image seen in the left visual field will be processed in the right occipital lobe, not the left, so there will be no impairment.

Question 24

Answer is A

Explanatory notes

A is correct. Broca's area in the left frontal lobe is responsible for coordinating the muscles that are necessary to produce speech.

B is incorrect. Wernicke's area in the left temporal lobe is responsible for finding the information in memory to aid in the comprehension of speech.

C and D are incorrect. See the explanations for A and B.

Question 25

Answer is D

Explanatory notes

A is incorrect. Most people process mathematical information in the left hemisphere.

B is incorrect. Most people process mathematical information in the left hemisphere and would use the right hemisphere to imagine something.

C is incorrect. See the explanation for B.

D is correct. The left hemisphere is most commonly used to process mathematical or logical information and the right hemisphere is commonly used in a creative task, such as visualisation.

Question 26*Answer is D***Explanatory notes**

A is incorrect. Wernicke's aphasia is characterised by an inability to speak coherently.

B is incorrect. Broca's aphasia is characterised by an inability to produce clear, complex speech.

C is incorrect. Anosognosia is a lack of awareness of a condition that one is experiencing.

D is correct. Spatial neglect, or neglect syndrome, is characterised by a tendency to ignore stimuli on one side of the body, most commonly the left.

Question 27*Answer is B***Explanatory notes**

A is incorrect as spatial neglect most commonly results from damage to the right parietal lobe, not the right temporal.

B is correct as spatial neglect occurs as a result of damage to the posterior region, or rear section, of the right parietal lobe.

C and D are incorrect as the anterior region is at the front of the lobe and spatial neglect is associated with damage to the posterior region of the right parietal.

Question 28*Answer is B***Explanatory notes**

B is correct. The statement that sleep conserves energy is an element of the survival or adaptive theory of sleep.

A, C and D are incorrect. They are all statements that support the restorative theory of sleep.

Question 29*Answer is C***Explanatory notes**

A is incorrect as the forgetting rate is the same regardless of the complexity of the material.

B is incorrect as more than 50 per cent of forgetting occurs within the first hour.

C is correct as most forgetting occurs within the first hour, making this part of the curve the steepest.

D is incorrect as intelligence has no impact on the rate of forgetting.

Question 30

Answer is A

Explanatory notes

A is correct. The inability to form new memories is known as anterograde amnesia.

B is incorrect. Retroactive interference occurs when newly learned information interferes with the ability to recall older information.

C is incorrect. Retrograde amnesia is the loss of older memories.

D is incorrect. Proactive interference is the inability to recall old information because newly learned information is interfering.

Question 31

Answer is D

Explanatory notes

A is incorrect. Frequent repetition is required for trial-and-error learning to take place, while taste aversion occurs after one incident.

B is incorrect. This is not a voluntary response that is related to operating directly on the environment. It is an involuntary, passive response such as in classical conditioning.

C is incorrect. Negative reinforcement is an operant term that refers to the strengthening of a response due to the removal of an unpleasant stimulus.

D is correct. This is an example of taste aversion, which is learnt after just one experience.

Question 32

Answer is B

Explanatory notes

A is incorrect. The discriminative stimulus is not a response, and the consequences follow the behaviour.

B is correct. If the right environment is present, the response will occur. The term for the environment is the 'discriminative stimulus'.

C is incorrect. The response is the behaviour that precedes the stimulus.

D is incorrect. The behaviour is the response.

Question 33

Answer is A

Explanatory notes

A is correct. Chunking involves condensing multiple items into smaller units to increase the capacity of short-term memory, thus aiding recall.

B is incorrect. Mnemonics are techniques that are used to link newly learned information to information that is already stored in long-term memory.

C is incorrect. Chunking increases the capacity, not the duration, of short-term memory.

D is incorrect. See the explanations for B and C.

Question 34

Answer is B

Explanatory notes

A is incorrect. This is the role of the phonological loop.

B is correct. The episodic buffer acts as a filter and pathway between long-term memory and sensory memory.

C and D are incorrect. These are the roles of the central executive.

Question 35

Answer is D

Explanatory notes

A and B are both incorrect as they are examples of shallow processing, where words are remembered according to their physical features.

C is incorrect as this is an example of deep processing, placing the words into memory semantically.

D is correct. By concentrating on the phonemic aspects of the words, moderate processing would be used.

Question 36

Answer is B

Explanatory notes

A is incorrect as this is the percentage of words that would be expected to be recalled using moderate processing. Learning words according to sound is shallow processing.

B is correct as Craik and Lockhart found that around 20 per cent of words were likely to be recalled when shallow processing was used.

C and D are both incorrect as these are below the level of recall for shallow processing.

Question 37

Answer is A

Explanatory notes

A is correct as the design is the repeated-measures design, which eliminates the extraneous variables related to participants.

B is incorrect as this is a possible disadvantage of the repeated-measures design.

C is incorrect as this is the main advantage of the matched-participants design.

D is incorrect as this is the main advantage of the independent-groups design.

Question 38*Answer is D***Explanatory notes**

A is incorrect. In a repeated-measures design, all participants are in the same group. There is no experimental group per se.

B is incorrect. The experimenter effect is possible if the experimenter intentionally or unintentionally influences the behaviour of the participants in such a way that the dependent variable is compromised. This is possible in any design.

C is incorrect. As all participants are in the experimental group, there is no possibility of their expectations about which group they are in affecting the result. However, there is always the possibility of the experimenter effect occurring.

D is correct. In the repeated-measures design, the participants are not divided into experimental and control groups. All participants take part in all levels of the study.

Question 39*Answer is A***Explanatory notes**

A is correct. The memory of how to do things, such as ride a bicycle, is procedural memory.

B is incorrect. Eidetic memory is photographic memory.

C is incorrect. Declarative memory involves semantic memory (memory of facts) and episodic memory (memory of specific life events).

D is incorrect. See the explanation for C.

Question 40*Answer is C***Explanatory notes**

A is incorrect. Procedural memory was used to ride the bicycle.

B is incorrect. Iconic memory is a form of sensory memory and stored for only 0.3 of a second.

C is correct. When recognising the house, Bai could have been using either semantic memory or episodic memory and these are both forms of declarative memory.

D is incorrect. Echoic memory is the sensory memory for sound, stored for up to 4 seconds.

Question 41*Answer is B***Explanatory notes**

A is incorrect. The consolidation theory refers to the way in which memories are formed at the neural level, not the way in which memories are triggered.

B is correct. The semantic network theory proposes that memory is stored in hierarchical structures and linked according to similarity. Triggering one memory of a seagull would fire neurons in connecting networks, thus triggering related memories.

C is incorrect. The Atkinson–Shiffrin model refers to the organisation of memory into three levels: sensory, short-term and long-term.

D is incorrect. The multi-store model is linked to both the Atkinson–Shiffrin model and the Baddeley and Hitch model of working memory, not to semantic memory.

Question 42*Answer is A***Explanatory notes**

A is correct. Neurotransmitters carry neural information from terminal buttons at the end of each axon to the dendrites of the receiving neuron.

B is incorrect. Terminal buttons are at the end of each axon.

C and D are incorrect. A synapse is the space between each neuron, across which the neurotransmitter travels.

Question 43*Answer is C***Explanatory notes**

A is incorrect. Neurons are more likely to fire when neurotransmitters are released.

B is incorrect. While this is technically a correct statement, it is not a specific explanation for long-term potentiation.

C is correct. Repeated stimulation of neurons, or repeated learning, will cause the relevant neurons to fire, and make it more likely that related neurons will be excited and that neuronal connections will be strengthened.

D is incorrect. This is an oversimplified explanation and does not effectively describe long-term potentiation.

Question 44*Answer is D***Explanatory notes**

A is incorrect. The cerebellum is believed to be responsible for reflexive (implicit) memory formation, such as memories created by classical conditioning.

B is incorrect. The basal ganglia are believed to be responsible for the formation of long-term procedural (implicit) memories.

C is incorrect. The frontal lobes are believed to be active in the formation of working memory, procedural memory and episodic memory. While episodic memory is an explicit memory, consolidation occurs in the hippocampus.

D is correct. Consolidation of explicit memory takes place in the hippocampus.

Question 45*Answer is D***Explanatory notes**

A, B and C are incorrect. See explanation for D.

D is correct. As the first task requires the use of semantic memory, Joan would be able to perform equally as well as the younger students. As the second task requires the use of episodic memory, it is likely that Joan may not perform as well, particularly if she tries to recall a more recent event.

Question 46*Answer is B***Explanatory notes**

A is incorrect because, although working (short-term) memory tends not to decline with age for simple tasks, this complex task might prove to be more difficult.

B is correct as learning and reciting poems is a complex task and, due to the likely decline or degeneration of the prefrontal cortex, Joan may find this task more difficult than her younger classmates.

C is incorrect as this is not a procedural task.

D is incorrect as this is not an episodic task.

Question 47*Answer is C***Explanatory notes**

A is incorrect. Neurofibrillary tangles are associated with sufferers of Alzheimer's disease, which is characterised by severe memory loss and disordered thinking. Neil is described as having slight memory loss.

B is incorrect. The inability to form new memories is anterograde amnesia.

C is correct. Neil's memory loss is likely to be mild, but could reduce confidence and motivation to exercise his brain, thus leading to further memory loss.

D is incorrect. Procedural memories are resistant to decay.

Question 48*Answer is C***Explanatory notes**

A is incorrect as this is a symptom of Korsakoff's syndrome, which is caused by chronic alcoholism.

B is incorrect as Neil is more likely to forget more recent events.

C is correct as dementia is often characterised by difficulty recalling more recent events.

D is incorrect as this is more common in severe cases of dementia.

Question 49*Answer is C***Explanatory notes**

A is incorrect. Glutamate is a neurotransmitter that is active in learning.

B is incorrect. Grey matter is the greyish covering of the cerebral cortices.

C is correct. Myelin is a fatty substance that coats axons during the maturation process in a child's brain.

D is incorrect. Dopamine is another neurotransmitter.

Question 50*Answer is B***Explanatory notes**

A is incorrect. The meat powder was the unconditioned stimulus and salivation to the bell was the conditioned response, while salivation to the meat powder was the unconditioned response.

B is correct. The bell was the conditioned stimulus and the meat powder was the unconditioned stimulus.

C and D are incorrect. See the explanations for A and B.

Question 51

Answer is A

Explanatory notes

A is correct. In classical conditioning, the responses are reflexive and automatic. The dogs were passively involved.

B, C and D are incorrect. See the explanation for A.

Question 52

Answer is A

Explanatory notes

A is correct. The light flashed every 30 seconds while the simulator remained on course. Time relates to intervals.

B is incorrect. Reinforcement is delivered after a fixed number of correct responses and is not related to time.

C and D are incorrect. The reinforcement was not variable, it was fixed.

Question 53

Answer is D

Explanatory notes

A is incorrect as reproduction was evidenced when she made the curry puffs.

B is incorrect as retention means retaining a memory of how the task is done.

C is incorrect as motivation means being prepared to reproduce the behaviour.

D is correct as watching carefully is an example of attention in the observational learning model.

Question 54

Answer is B

Explanatory notes

A is incorrect. Withdrawing socially is an example of how psychological factors affected social factors, but in terms of her unemployment, this is incorrect.

B is correct. Being unemployed is a social factor. This led to a withdrawal from society (psychological) and the onset of depression (biological and psychological).

C is incorrect. It is unlikely that biological factors came first. Also, unemployment is not biological.

D is incorrect. See the explanation for C.

Question 55

Answer is C

Explanatory notes

A is incorrect. Kalini's appraisal is clearly negative.

B is incorrect. The scenario suggests that Kalini has moved well past the primary appraisal stage.

C is correct. It is during the secondary appraisal stage that individuals determine their level of coping skills. In this case, Kalini has begun to express negative emotions in response to her negative assessment of the situation.

D is incorrect. When Kalini was initially presented with the stressor, unemployment, she may have been less negative. However, this scenario suggests that the situation is ongoing and is well past the primary appraisal stage.

Question 56

Answer is D

Explanatory notes

A is incorrect as eustress is positive stress.

B is incorrect as although stress is evident, this is not the best response.

C is incorrect as homeostasis is the calming of the arousal response that is associated with stress by the parasympathetic nervous system.

D is correct as Kalini has most likely entered the exhaustion phase, where she has become psychologically exhausted and is experiencing signs of hopelessness. Distress is the cause of this situation.

Question 57

Answer is C

Explanatory notes

A is incorrect. Dopamine is a neurotransmitter. The stress hormones that would be reduced are cortisol and adrenaline.

B is incorrect. The allostatic load would be decreased as her stress becomes more manageable due to social support and her improved physical condition.

C is correct. Physical exercise will help her physical condition, which is a biological intervention. Being a member of the group is a social intervention. Both are likely to improve her depressive symptoms.

D is incorrect. The fight/flight response is a stress response. As the stressors are reduced, this is less likely to be activated. Becoming fitter will help her avoid it.

Question 58

Answer is A

Explanatory notes

A is correct. The amygdala, located within the medial temporal lobe, receives the information about the stressor initially from the thalamus.

B is incorrect. This response comes via the thalamus not the hypothalamus.

C is incorrect. The cerebellum is a structure in the hindbrain and is important in the control of autonomic functions.

D is incorrect. The hippocampus is important in the formation of memories, but is not directly involved in the fight/flight response.

Question 59

Answer is D

Explanatory notes

A is incorrect as increased perspiration may occur with increased stress, but this is not what is measured with the GSR.

B is incorrect as increased heart rate may occur with increased stress, but this is not what is measured with the GSR.

C is incorrect as an increased resistance to an electrical current is not likely to occur if stress increases.

D is correct as the GSR measures the skin's resistance to an electrical current. If the resistance is decreased, the current flows more freely, which is often noted following increased perspiration due to stress.

Question 60

Answer is B

Explanatory notes

A is incorrect as biofeedback uses operant conditioning.

B is correct as biofeedback provides physiological readings when an individual is asked to mentally re-experience a stressor. This allows the individual to see which muscles or organs are responding and to consciously reduce the arousal of that muscle or organ.

C and D are incorrect as biofeedback provides information on physiological responses, not psychological responses.

Question 61*Answer is C***Explanatory notes**

A is incorrect. The GSR is a physiological response that is measured by electrodes that are attached to the skin. This is a measure of the skin's ability to resist an electrical current, not of brain activity.

B is incorrect. The electro-oculargraph measures electrical activity in the muscles that control eye movements.

C is correct. The electroencephalograph is used to measure brain activity and brain waves, which can indicate an individual's level of alertness.

D is incorrect. The electrocardiograph measures electrical activity of the heart muscles.

Question 62*Answer is B***Explanatory notes**

A is incorrect. Cross-sectional research collects data at one time from participants from various age groups.

B is correct. This form of study is known as a longitudinal study, where the same participants are followed over a lengthy period of time and data is collected at various stages of development.

C is incorrect. A case study looks at one individual in depth, not at a group.

D is incorrect. An experiment is a closely controlled study, where the variables that may impact on the dependent variable are controlled.

Question 63*Answer is C***Explanatory notes**

A is incorrect as the participants are not divided into distinct groups.

B is incorrect as the scenario does not suggest that the participants were matched on any personal characteristics prior to the beginning of the study.

C is correct as the same participants are used throughout, so it is a form of repeated-measures design.

D is incorrect as this is another term for independent-groups design.

Question 64

Answer is A

Explanatory notes

A is correct. Longitudinal studies are carried out over many years, and participants may tire of the intrusion and withdraw, or they may die or move away. This makes it difficult to maintain the same research group throughout.

B is incorrect. Very expensive equipment is not ordinarily needed. Basic data collection and analysis tools are used.

C is incorrect. As the data collected is actual data from real-life events, there is no artificiality in the setting.

D is incorrect. Longitudinal studies are very good for monitoring progressive conditions.

Question 65

Answer is D

Explanatory notes

A is incorrect. Nominal data is used when an arbitrary name is applied to the data.

B is incorrect. Ordinal data is data that has a definite sequence, such as the age of the participants.

C is incorrect. Objective data is not open to interpretation and is more reliable than the data obtained through self-report.

D is correct. If self-report is used, the individual perspective can influence the response, making this type of data collection subjective and less reliable.

END OF SECTION A

SECTION A

Section B – Short answer questions**Question 1a.****Sample answer**

Partial sleep deprivation means having a small amount of sleep in a *24-hour period*, but *not a sufficient amount for our needs*.

Total deprivation means having *no sleep within a 24-hour period*.

Mark allocation: 2 marks

- 1 mark for fully explaining partial sleep deprivation (**Note:** italicised information must be included)
- 1 mark for fully explaining total sleep deprivation

Question 1b.**Sample answer**

Physiological: Any one of slowed physical reflexes, hand tremors, droopy eyes, difficulty focusing, increased pain sensitivity, headaches or reduced energy

Psychological: Any one of difficulties with concentration, cognitive processing, thinking, reasoning, memory, creativity or perception; mood disturbances; lack of interest in normally enjoyable activities; lack of motivation; increased clumsiness or lack of physical coordination; increased risk-taking behaviour; or slowed performance on physical tasks

Mark allocation: 2 marks

- 1 mark for each correct answer

Question 2

Sample answer

If you step on a piece of glass while walking barefoot, the somatic nervous system will send the sensory information about the pain via sensory neurons to the somatosensory cortex in the central nervous system.

The message will then be sent to the primary motor cortex, which will initiate a motor response, activating motor neurons, which will transmit the motor information via the somatic nervous system, withdrawing your foot from the glass.

Mark allocation: 3 marks

- 1 mark for explaining the role of sensory neurons in transmitting the sensory information to the central nervous system
- 1 mark for explaining the role of the central nervous system and the somatic nervous system in activating the motor response
- 1 mark for explaining the role of the central nervous system and the somatic nervous system in transmitting the motor response
- An appropriate example must be used for full marks.



Tip

- *It is important to remember that messages travel via neurons; the neurons do not travel.*

Question 3

Sample answer

Allostasis is the ability of the sympathetic nervous system to respond to the need to increase arousal when faced with a threat. For example, when a loud noise frightens us, we are immediately aroused, readying the body to respond.

Homeostasis occurs when the parasympathetic nervous system acts to maintain normal autonomic functions after sympathetic arousal or return the body to a stable state after arousal. For example, after the fear of the loud noise has passed, the body is calmed to normal levels.

Mark allocation: 4 marks

- 1 mark for a reference to the allostatic capacity of the sympathetic nervous system to respond to threats
- 1 mark for a reference to the role of the parasympathetic nervous system in keeping the body at a normal, calm state
- 1 mark for an appropriate example of an allostatic response
- 1 mark for an appropriate example of a homeostatic response

Question 4a.**Sample answer**

Yes, Tan will be able to name the apple as an image in the right visual field will be processed in the left hemisphere, where the language centres are located.

Mark allocation: 2 marks

- 1 mark for explaining that Tan will process the image in the left hemisphere
- 1 mark for explaining that this is where language centres are located

Note: The student must indicate that Tan will be able to describe what he saw.

Question 4b.**Sample answer**

Tan will be aware that he is holding a ball, but he will not be able to name it as the sensory information will be processed in the right hemisphere and will not be transmitted to the left so that it can be named.

Tan could draw the ball with his right hand to describe what he is holding.

Mark allocation: 2 marks

- 1 mark for stating that Tan cannot name the ball and explaining why he cannot name the ball
- 1 mark for describing that Tan could draw the ball with his right hand

**Tip**

- *When a question provides a scenario, your answer must specifically relate to the scenario that is outlined. If you provide a definition of the model or term referred to without reference to the scenario, you will lose marks.*

Question 5a.**Sample answer**

When taking note of what she needed, Jacinta would have *encoded* the information so that it could then be *stored* in memory. When recalling what she needed while actually at the supermarket, she would have *retrieved* the information from memory.

Mark allocation: 3 marks

- 1 mark for describing encoding
- 1 mark for describing storage
- 1 mark for describing retrieval

Note: The key words *encoding*, *storage* and *retrieval* must be used.

Question 5b.**Sample answer**

Jacinta could have used narrative chaining by making up a story using all of the items on the shopping list and then recalling the story when at the supermarket to help her retrieve the items.

OR

Jacinta could have used an acronym by using the first letters of each of the items she has to remember to form a word.

OR

Jacinta could have used an acrostic by creating a poem using the first letters of each word to begin each line.

Mark allocation: 2 marks

- 1 mark for identifying narrative chaining, or an acronym, or an acrostic
- 1 mark for correctly explaining how this would be applied

Question 5c.**Sample answer**

It is likely that Jacinta would remember some items at the beginning of the list due to the primacy effect and then remember fewer items at the end of the list due to the recency effect.

Mark allocation: 2 marks

- 1 mark for correctly explaining that the primacy effect would be evident
- 1 mark for correctly explaining that the recency effect would be evident

**Tip**

- *When a question uses the phrase 'in terms of', you must use the actual terminology of that model.*

Question 6a.**Sample answer**

When playing the game, Brodie was using the *visuospatial sketchpad* and while listening to Orazio he was using the *phonological loop*. The *central executive* was able to manipulate the information from both stores at the same time as they involved different functions.

Mark allocation: 3 marks

- 1 mark for a stating that the visuospatial sketchpad is used when playing the game
- 1 market for a stating that the phonological loop is used when listening
- 1 mark for explaining the role of the central executive in coordinating the two separate stores

Question 6b.**Sample answer**

As listening to his mother and his friend involved using the same store, the phonological loop, Brodie could not multi-task. He could use this store to focus on only one conversation at a time.

Mark allocation: 1 mark

- 1 mark for explaining that it is difficult to use the same store to process two separate stimuli at the same time

Question 7a.**Sample answer**

When Christian found that he had begun to understand the language, he was demonstrating the sensitivity of relearning as a measure of retention. Previously learned information is retained to a certain degree, and when relearned it takes a relatively short time for the new information to be retained.

Mark allocation: 2 marks

- 1 mark for identifying relearning as the measure of retention
- 1 mark for explaining that previously learned information is retained, so the information is relearned relatively quickly

Question 7b.**Sample answer**

When reading the menu, Christian was using recognition, which is a means of selecting information from a range of information presented.

Mark allocation: 1 mark

- 1 mark for identifying recognition

Question 8**Sample answer**

According to Freud's psychoanalytic theory, if we find a memory too painful to recall, we may use repression and unconsciously forget the event.

OR

According to Freud's psychoanalytic theory, if we find a memory too painful to recall, we may use suppression, which is a conscious decision to forget.

Mark allocation: 1 mark

- 1 mark for naming and explaining repression or suppression. As this is just a one-mark question students don't need to explain both terms.

Question 9a.**Sample answer**

A fixed action pattern is a complex set of behaviours that is performed identically by each member of a species in response to the same environmental stimulus, whereas a reflex action is an automatic, involuntary response to a stimulus.

Mark allocation: 2 marks

- 1 mark for indicating the complexity of a fixed action pattern
- 1 mark for indicating the simplicity of a reflex response

Question 9b.**Sample answer**

Both a fixed action pattern and a reflex action are unlearned responses.

OR

Both a fixed action pattern and a reflex action are associated with the survival of a species.

Mark allocation: 1 mark

- 1 mark for identifying that both behaviours are unlearned

OR

- 1 mark for identifying that both behaviours are linked to survival

Question 9c.**Sample answer**

A funnel-web spider building its web

Mark allocation: 1 mark

- 1 mark for any appropriate example of a fixed action pattern

Question 10a.**Sample answer**

The sympathetic nervous system

Mark allocation: 1 mark

- 1 mark for the correct answer. No other term, other than what is shown, is acceptable.

Question 10b.**Sample answer**

Operant conditioning

Mark allocation: 1 mark

- 1 mark for the correct answer. No other term, other than what is shown, is acceptable.

Question 10c.**Sample answer**

The ventral tegmental area in the midbrain

Mark allocation: 1 mark

- 1 mark for the correct answer. No other term, other than what is shown, is acceptable.

Question 10d.**Sample answer**

The new learning caused changes in the brain's neurons, resulting in new neural pathways and synapses. This is an example of adaptive plasticity.

Mark allocation: 2 marks

- 1 mark for stating that there is neuronal change
- 1 mark for stating that this is adaptive plasticity

Question 11**Sample answer**

Any two of:

- To be effective, punishment needs to be immediate – Oscar’s punishment took place several hours later.
- Punishment also needs to be linked closely to the undesirable behaviour in the mind of the child – it would be difficult to make a connection between the naughty corner and bad behaviour in the supermarket.

OR

The punishment needs to be brief – half an hour in the naughty corner is a long time for a three-year-old.

Mark allocation: 2 marks

- 1 mark each for any two of the points above

OR

- 1 mark for indicating that Oscar’s punishment was not brief

Note: If the answer is not linked to the scenario, marks will not be awarded.

Question 12**Sample answer**

A sensitive period is a time during development when humans are best suited to a particular type of learning. For example, humans have a sensitive period for language acquisition in the first year of life.

A critical period, where there is a very narrow period of time when the learning can occur, relates more to other animals, for example, attachment formed by birds upon hatching, as described by Lorenz.

Mark allocation: 4 marks

- 1 mark for a correct explanation of a sensitive period as it applies to humans
- 1 mark for an appropriate example of this
- 1 mark for a correct explanation of a critical period as it applies to animals
- 1 mark for an appropriate example of this

Question 13**Sample answer**

Luna Park became a context-dependent cue that triggered the memory and the fear response. The fear response in turn became a state-dependent cue that triggered more of the memory.

Mark allocation: 2 marks

- 1 mark for correctly describing Luna Park as a context-dependent cue
- 1 mark for correctly explaining that the fear response acted as a state-dependent cue

Question 14a.**Sample answer**

Loftus found that if specific misleading language is used when questioning an eyewitness to a crime, the recall of the event by the eyewitness can be distorted.

Mark allocation: 2 marks

- 1 mark for a reference to the use of misleading language
- 1 mark for a reference to how this can distort the testimony of an eyewitness

Question 14b.**Sample answer**

If an eyewitness says they saw two people robbing a store, but was not really sure of the gender of the two culprits, and the police officer interviewing them says, 'What colour was the coat that the girl was wearing?', the eyewitness is likely to respond as though they are certain that one of the culprits was a girl.

Mark allocation: 2 marks

- 2 marks for providing a clear example that shows both of the pieces of information that are required for part a

Question 15**Sample answer**

With new learning, either new neural pathways are formed (synaptogenesis) or existing pathways are strengthened.

During learning, the axon terminals of the presynaptic neuron release glutamate, a neurotransmitter, into the synaptic gap between the presynaptic and postsynaptic neuron, causing a linkage with the dendrites of the postsynaptic neuron, strengthening the neural pathway.

Mark allocation: 5 marks

- 1 mark for identifying the process of synaptogenesis
- 1 mark for a reference to the release of glutamate
- 1 mark for an explanation of the role of presynaptic neurons
- 1 mark for an explanation of the role of postsynaptic neurons
- 1 mark for a reference to the strengthening of the neural pathway via dendrites

Question 16a.**Sample answer**

The aim of the 'Little Albert' experiment was to determine if a fear response could be classically conditioned. This is a breach of the principle that states that participants should not experience any physical or psychological harm as a result of research.

Mark allocation: 2 marks

- 1 mark for stating that the aim was to classically condition a fear response
- 1 mark for identifying that this was a breach of the 'do no harm' principle

Note: The response must include reference to both physical and psychological harm for the mark to be awarded.

Question 16b.**Sample answer**

Debriefing
Informed consent

Mark allocation: 2 marks

- 1 mark for the identification of debriefing
- 1 mark for the identification of informed consent

Note: Debriefing and informed consent are the best responses here. It could be argued that confidentiality was also breached, as photographs and film of 'Little Albert' were published, so 1 mark could be awarded for this response.

END OF SECTION B

SECTION B

Section C – Research scenario

Question 1

Sample answer

Dr Curry used the matched-participants design. This design is the most effective in controlling for possible participant-related extraneous variables.

Mark allocation: 2 marks

- 1 mark for identifying matched-participants design
- 1 mark for stating that this design will control for participant-related extraneous variables

Note: It is not sufficient to say just ‘extraneous variables’. The term ‘participant-related’ must be included.

Question 2

Sample answer

If one participant withdraws, the matched-pair result must also be withdrawn.
OR
It is costly and time consuming.

Mark allocation: 1 mark

- 1 mark for either of the weaknesses identified

Question 3

Sample answer

Any two of

1. Obtaining informed consent from the students’ parents/guardians
2. Ensuring that the participants experience no physical or psychological harm as a result of the study

OR

Ensuring that the confidentiality of the participants is protected
Allowing the participants to withdraw from the study at any time
Ensuring voluntary participation
Ensuring that there is no deception in the study
Ensuring that the participants are fully debriefed at the conclusion of the study

Mark allocation: 2 marks

- 1 mark for each of the two ethical principles identified

Question 4**Sample answer and mark allocation**

- The result of $p = 0.04$ indicates that there is a significant difference between the size of the hippocampal area in participants of the experimental group and those of the control group (1 mark). This supports the hypothesis that the intensive science program would impact upon brain (hippocampal) development in young children (1 mark).
- The increased development within the hippocampus of the participants who undertook the intensive science program supports the theory that the hippocampus is important for the formation and consolidation of memory (2 marks), specifically semantic memory, which is a form of declarative memory (1 mark).
- This sample was selected according to specific personal characteristics (1 mark).
The participants were not drawn from the general eight-year-old population (1 mark). This makes it difficult to generalise the result to all eight-year-olds (1 mark).
- In order to improve the generalisability of the study, it would be useful to use stratified sampling to ensure that all members of the target population (eight-year-old students) are represented in the sample (2 marks).

END OF SOLUTIONS BOOK