Section A Assessment Guide – Psychology 2014

VCAA Key Knowledge	Question	Answer guide
Concepts of normal waking consciousness and altered states of consciousness	**Question 1** Consciousness can be defined as **A.** a moral guide. **B.** awareness of internal behaviours. **C.** being interpersonal, selective, continuous and changing. **D.** awareness of both internal experiences and the external world.	***D*** *Consciousness can be defined as awareness of internal thoughts and feelings, as well as external behaviours, objects and events.* *C is incorrect as consciousness is said to be personal, not interpersonal.*
Manipulation and improvement of memory: *- measures of retention including the relative sensitivity of recall, recognition and relearning*	**Question 2** Which of the following is the most sensitive measure of retention? **A.** recognition **B.** relearning **C.** recall **D.** retrieval	***B*** *Relearning is the most sensitive measure of retention, followed by recognition, then recall as the least sensitive measure of retention.*
Experimental research: evaluation of different types of experimental research designs including independent-groups, matched-participants, repeated-measures	**Question 3** What is an issue with the repeated-measures design, and how can it be overcome? **A.** counterbalancing; order effects **B.** individual participant differences; counterbalancing **C.** order effects; counterbalancing **D.** sampling bias; random sampling	***C*** *Order effects are an issue with the repeated-measures design which may be overcome by counterbalancing.*

Manipulation and improvement of memory: *- measures of retention including the relative sensitivity of recall, recognition and relearning*	**Question 4** Why is it easier for Tim to recognise a repeat episode of his favourite TV show than for him to list the plot lines of each of the episodes he has watched so far? **A.** recall provides more cues than recognition **B.** relearning provides more cues than recall **C.** recall provides more cues than retrieval **D.** recognition provides more cues than recall	***D*** *Recognition of a repeat episode of a TV show requires recognition, whereas listing the plot lines of each of the episodes he has watched requires recall.* *Recognition is a more sensitive measure of retention than recall, and provides more cues for Tim to retrieve the information.* *Relearning is not relevant to this scenario.*
Strengths and limitations of theories of forgetting: *- retrieval failure theory including tip-of-the-tongue phenomenon, interference theory, motivated forgetting as informed by the work of Sigmund Freud including repression and suppression, decay theory*	**Question 5** The recall of the names of high school classmates is typically more difficult for healthy elderly people, as they have not recently thought about the information, compared to healthy adolescents. Which theory of forgetting would best account for this? **A.** decay theory **B.** Alzheimer's disease **C.** dementia **D.** disruption to consolidation	***A*** *Decay theory suggests that a physical memory trace that is not rehearsed is liable to deteriorate.* *However, contrary to decay theory, studies suggest that the elderly can <u>recognise</u> names of classmates almost as well as adolescents. This suggests that retrieval-failure might be occurring, because when given sufficient cues (recognition), the elderly can retrieve this information more easily.*
Models for explaining human memory: *- organisation of long-term memory including declarative (episodic and semantic) and procedural memory*	**Question 6** Your ability to blow out candles on a birthday cake would be considered to be **A.** implicit, semantic memory. **B.** implicit, procedural memory. **C.** explicit, procedural memory. **D.** explicit, semantic memory.	***B*** *Procedural memories (how to do something) are considered implicit, as it is difficult to directly express this information in words.*
Strengths and limitations of theories of forgetting: *- retrieval failure theory including tip-of-the-tongue phenomenon, interference theory, motivated forgetting as informed by the work of Sigmund Freud including repression and suppression, decay theory*	**Question 7** What cause of forgetting would be most difficult to test empirically? **A.** proactive interference **B.** retroactive interference **C.** dementia **D.** motivated forgetting	***D*** *Empirical testing refers to the collection of data through observation.* *Motivated forgetting theory, particularly repression, is most difficult to test empirically due to the 'unconscious mind' (as proposed by Freud) being the explanation for forgetting. An unconscious mind is difficult to test as it is unable to be directly observed, and its effects on memory/forgetting are not necessarily systematic. The existence of the unconscious mind is still in contention,*

Strengths and limitations of theories of forgetting: – forgetting curve as informed by the work of Hermann Ebbinghaus

Question 8

Ebbinghaus' forgetting curve suggests that

A. 10% of memory is lost in an hour after initial learning.

B. 30% of memory is lost in an hour after initial learning.

C. 50% of memory is lost in an hour after initial learning.

D. more than 50% of memory is lost in an hour after initial learning.

D *Approximately 55% of information is lost within an hour after initial learning.*

Use the following information to answer Questions 9-10.

Jim wants to learn how to make cupcakes just like his mum.

Applications, and comparisons, of learning theories: - observational learning (modelling) processes in terms of the role of attention, retention, reproduction, motivation, reinforcement as informed by albert bandura's social learning theory

Question 9

After watching his mum make cupcakes on two occasions, Jim forms a mental representation of the process of making cupcakes. According to the processes of observational learning, he has fulfilled the step of

A. attention.

B. motivation.

C. reproduction.

D. retention.

D *Retention refers to creating a mental representation and holding this memory.*

Applications, and comparisons, of learning theories:
- three-phase model of operant conditioning as informed by b.f. Skinner: positive and negative reinforcement, response cost, punishment and schedules of reinforcement;
- observational learning (modelling) processes in terms of the role of attention, retention, reproduction, motivation, reinforcement as informed by albert bandura's social learning theory

Question 10

On the third time that Jim watches his mum baking cupcakes, she accidentally burns herself on a hot baking tray. Jim no longer wants to make cupcakes.

Why would Jim's reluctance to make cupcakes be a product of observational learning, and not operant conditioning?

A. Jim has received reinforcement, which can occur in observational learning, but not in operant conditioning

B. Jim has received vicarious punishment, which can occur in observational learning, but not in operant conditioning

C. Jim has been punished for initially wanting to make cupcakes, which can occur in observational learning, but not in operant conditioning

D. Jim's mother has received vicarious punishment, which can occur in observational learning, but not in operant conditioning

B *Jim's reluctance has been motivated by his mum burning herself, not by Jim being burnt himself. Therefore, he has learnt this reluctance vicariously (through the consequences administered to the model and not the learner), which is a feature of observational learning and not operant conditioning where the learner receives the consequences directly.*

Mechanism of memory formation:
- the neuron in memory formation including the role of axons, dendrites, synapses and neurotransmitters

Neural basis of learning:
- the development of neural pathways including the role of axons, dendrites, synapses and neurotransmitters

Question 11

The role of axon terminals is to

A. receive neurotransmitters released from the post-synaptic neuron.

B. release neurotransmitters to be received by the post-synaptic neuron.

C. release neurotransmitters to be received by the pre-synaptic neuron.

D. receive neurotransmitters released from the pre-synaptic neuron.

B *Axon terminals transmit neurotransmitters to the neighbouring, post-synaptic neuron.*

Applications, and comparisons, of learning theories: - trial-and-error learning

Question 12

When completing a hedge maze, Sam makes numerous haphazard and failed attempts at finding the end point. When he finishes the maze, he is able to successfully navigate the hedge maze a second time by repeating the turns that led him to the end point, and avoiding the turns that led him to the wrong direction.

Which theory of learning can best account for Sam's conditioned response of successfully completing the maze the second time around?

A. trial-and-error learning
B. classical conditioning
C. Pavlovian conditioning
D. observational learning

A *Sam has made numerous attempts (trials) in order to solve a problem until all the unsuccessful behaviours (errors) are eliminated from the repertoire and the maze is completed.*

Use the following information to answer Questions 13-14.

Emily often bites her nails. Her mum wants to get rid of this bad habit.

Applications, and comparisons, of learning theories: - applications of classical conditioning: graduated exposure, aversion therapy, flooding

Question 13

Which of the following would be an example of the elements of aversion therapy to discourage Emily from biting her nails?

A. *Discriminative stimulus:* Emily's nails
Behaviour: Emily biting her nails
Consequence: Emily's mum administering an aversive stimulus such as applying nauseating nail polish to her nails

B. *Discriminative stimulus:* Emily's mum being away from Emily
Behaviour: Emily biting her nails
Consequence: Emily's mum administering an aversive stimulus such as feeding her vegetables Emily dislikes

C. *Neutral stimulus:* Emily biting her nails
Unconditioned stimulus: nauseating nail-polish
Unconditioned response: feeling nauseous
Conditioned stimulus: Emily biting her nails
Conditioned response: Emily feeling nauseous when she bites her nails

D. *Neutral stimulus:* Emily biting her nails
Unconditioned stimulus: being told off by her mum
Unconditioned response: listening to her mum
Conditioned stimulus: Emily biting her nails
Conditioned response: remembering what mum said about not biting her nails

C *Aversion therapy is an application of classical conditioning and not operant conditioning, as it involves the association of the bad habit and an unpleasant unconditioned stimulus.*

Applications, and comparisons, of learning theories: - comparisons of classical and operant conditioning in terms of the processes of acquisition, extinction, stimulus generalisation, stimulus discrimination, spontaneous recovery, role of learner, timing of stimulus and response, and nature of response

Question 14

Once Emily's mum is satisfied that Emily no longer bites her nails, she stops conditioning her. Emily begins to bite her nails again. What has happened to Emily's learned behaviour?

A. spontaneous recovery
B. acquisition
C. stimulus generalisation
D. extinction

D *Emily's learned response (no longer biting her nails) has become extinguished, in a process known as extinction.*

This is not to be confused with spontaneous recovery.

Use the following information to answer Questions 15-18.

Brian has had his cerebral hemispheres separated due to his severe epilepsy.

Contribution of studies to the investigation of cognitive processes of the brain and implications for the understanding of consciousness including:
- split-brain studies including the work of Roger Sperry and Michael Gazzaniga

Question 15

Which part of Brian's brain has been severed?

A. the corpus callosum
B. the cingulate cortex
C. the cerebral cortex
D. the cerebellum

A *The corpus callosum connects the two cerebral hemispheres.*

The interaction between cognitive processes of the brain and its structure including:
- hemispheric specialisation: the cognitive and behavioural functions of the right and left hemispheres of the cerebral cortex, non-verbal versus verbal and analytical functions

Question 16

After Brian's operation, an epileptic seizure arising in his left cerebral hemisphere would

A. affect both sides of his body.
B. affect the left side of his body.
C. affect the right side of his body.
D. not affect his body at all.

C *Given contralateral organisation, it would be expected that a seizure in his left hemisphere would affect the right side of his body.*

Contribution of studies to the investigation of cognitive processes of the brain and implications for the understanding of consciousness including:
- split-brain studies including the work of Roger Sperry and Michael Gazzaniga

Question 17

Brian is concurrently flashed an image of a cup in his left visual field, and an image of a pen in his right visual field. When asked to identify what Brian saw, he could:

A. verbalise that he saw a cup, and select a pen from a range of objects out-of-sight with his right hand.
B. verbalise that he saw a pen, and select a cup from a range of objects out-of-sight with his right hand.
C. verbalise that he saw a pen, and select a cup from a range of objects out-of-sight with his left hand.
D. only identify seeing a pen.

C *Brian could verbalise that he saw a pen because the pen presented to his right visual field was processed by his left hemisphere which is responsible for language.*

Brian could select a cup from a range of objects with his left hand because the cup was presented to his left visual field, and processed by his right hemisphere which controls movement in his left hand.

Contribution of studies to the investigation of cognitive processes of the brain and implications for the understanding of consciousness including: *- split-brain studies including the work of Roger Sperry and Michael Gazzaniga*	**Question 18** What would Brian's results suggest about hemispheric specialisation? **A.** the left hemisphere of the brain is responsible for non-verbal processing, and the right hemisphere of the brain is responsible for verbal processing **B.** the right hemisphere of the brain is responsible for non-verbal processing, and the left hemisphere of the brain is responsible for verbal processing **C.** both hemispheres are equally responsible for verbal and non-verbal processing **D.** Brian's results cannot support hemispheric specialisation	***B*** *The right hemisphere is said to specialise in non-verbal processing, whereas the left hemisphere is said to specialise in verbal processing.*
Methods used to study the level of alertness in normal waking consciousness and the stages of sleep: *- measurement of physiological responses including electroencephalograph (EEG), electromyograph (EMG), electro-oculargraph (EOG), heart rate, body temperature and galvanic skin response (GSR)*	**Question 19** What type of data is collected by an electroencephalograph, electromyograph, and electro-oculargraph? **A.** psychological data **B.** inferential data **C.** qualitative data **D.** quantitative data	***D*** *The EEG, EMG and EOG all collect quantitative data about physiological processes.*
Concepts of normal waking consciousness and altered states of consciousness including daydreaming and alcohol-induced, in terms of levels of awareness, content limitations, controlled and automatic processes, perceptual and cognitive distortions, emotional awareness, self-control and time orientation	**Question 20** In an alcohol-induced altered state of consciousness, which of the following is **not** inhibited? **A.** controlled processes **B.** automatic processes **C.** cognitive distortions **D.** emotional awareness	***C*** *Controlled processes, automatic processes and emotional awareness are all typically hindered (inhibited) during an altered state of consciousness. Cognitive distortions can be a feature of an altered state of consciousness – these are not prevented or slowed down during an altered state of consciousness.*

Methods used to study the level of alertness in normal waking consciousness and the stages of sleep: - measurement of physiological responses including electroencephalograph (EEG), electromyograph (EMG), electro-oculargraph (EOG), heart rate, body temperature and galvanic skin response (GSR) – the use of sleep laboratories, video monitoring and self-reports

Question 21

Which of the following would be the most reliable indicator of sleep?

A. Galvanic Skin Response (GSR)
B. body temperature
C. heart rate
D. electroencephalograph (EEG) recordings

D *An EEG would be the most reliable indicator of sleep as the electrical activity of the brain changes significantly as a person falls into deeper stages of sleep, compared to GSR, body temperature and heart rate.*

Sleep as an altered state of consciousness: purpose of sleep, characteristics and patterns of the stages of sleep including rapid eye movement (REM) and the non-rapid eye movement (NREM) stages of sleep

Methods used to study the level of alertness in normal waking consciousness and the stages of sleep: – the use of sleep laboratories, video monitoring and self-reports

Question 22

Within a sleep lab, how could video monitoring be a useful indicator of NREM sleep, compared to REM sleep?

A. video monitoring could indicate that people are in NREM sleep when they have some movement, and indicate REM sleep when they have little to no movement
B. video monitoring could indicate that people are in NREM sleep when they are dreaming, and indicate REM sleep when they have some movement, such as yawning
C. video monitoring could indicate that people are in NREM sleep when they are not dreaming, and indicate REM sleep when they are dreaming
D. video monitoring would not be able to determine whether someone is in NREM or REM sleep

A *During REM sleep, generally there is no movement; however, occasional twitching can occur.*

Methods used to study the level of alertness in normal waking consciousness and the stages of sleep:
– the use of sleep laboratories, video monitoring and self-reports

Applications, and comparisons, of learning theories:
– comparisons of classical and operant conditioning in terms of the processes of acquisition, extinction, stimulus generalisation, stimulus discrimination, spontaneous recovery, role of learner, timing of stimulus and response, and nature of response (reflexive/voluntary)

Question 23

Dr Keating found that images of participants' own beds triggered feelings of sleepiness and yawning. Given this finding, what is a limitation of studying sleep habits in a sleep laboratory?

A. stimulus discrimination may occur; this would enable them to feel sleepy as they usually do when they see their own bed
B. stimulus discrimination may not occur; this would enable them to feel sleepy as they usually do when they see their own bed
C. stimulus generalisation may not occur; this would prevent them from feeling sleepy as they usually do when they see their own bed
D. stimulus generalisation may occur; this would prevent them from feeling sleepy as they usually do when they see their own bed

C *A limitation of a sleep lab may be that participants may not respond to the new sleeping environment in the same way that they do when they are at home. If this is the case, stimulus discrimination (between lab and home) has occurred, and stimulus generalisation (where sleepiness and yawning occurs in response to seeing their bed in the lab) has not occurred.*

The effects of total and partial sleep deprivation:
– loss of REM and NREM sleep

Question 24

The loss of _____ will most likely deprive the body of psychological restoration.

A. REM sleep
B. stage 1 NREM sleep
C. micro-sleeps
D. slow wave sleep

A *REM sleep is typically associated with psychological restoration and memory consolidation, whereas stages 3 and 4 NREM sleep (slow wave sleep) is typically associated with the physical restoration of the body.*

The effects of total and partial sleep deprivation:
– sleep recovery patterns including amount of sleep required, REM rebound and microsleeps

Question 25

While apparently staying awake after 24 hours without sleep, which of the following is most likely to occur?

A. microsleeps
B. REM rebound
C. hallucinations
D. loss of memory

A *Microsleeps are short moments of sleep that tend to occur after sleep deprivation, and occur when the person is appears to be awake.*

The effects of total and partial sleep deprivation

Question 26

Which of the following tasks would be the most difficult to sustain after 24 hours of sleep deprivation?

A. devising creative responses to a complex problem
B. sleep
C. completing a difficult maths test
D. paying attention to a boring lecture

D *Relatively simple tasks requiring little effort are more difficult to sustain after sleep deprivation compared to relatively difficult tasks requiring more effort.*

The effects of total and partial sleep deprivation:
– sleep recovery patterns including amount of sleep required, REM rebound and microsleeps

Question 27

After many months of training, Andy has just completed an ultra-marathon, running 90 kilometres. For the two nights after the run, Andy is likely to experience

A. more light (stages 1 and 2 NREM) sleep compared to REM sleep.
B. more deep (stages 3 and 4 NREM) sleep compared to REM sleep.
C. more REM sleep compared to light (stages 1 and 2 NREM) sleep.
D. more REM sleep compared to deep (stages 3 and 4 NREM) sleep.

B *Stages 3 and 4 NREM sleep (deep sleep) is typically associated with the physical restoration of the body, and is likely to increase after a period of intense physical exertion.*

Sleep as an altered state of consciousness: purpose of sleep, characteristics and patterns of the stages of sleep including rapid eye movement (REM) and the non-rapid eye movement (NREM) stages of sleep

The effects of total and partial sleep deprivation:
– sleep-wake cycle shifts during adolescence compared with child and adult sleep including delayed onset of sleep and need for sleep

Question 28

Research shows that sleep has an important role in brain growth. Which of the following is the best support for this claim?

A. the comparatively higher proportion of REM sleep that infants experience compared to adults
B. the comparatively higher proportion of NREM sleep that infants experience compared to adults
C. REM rebound
D. increased NREM sleep after a tiring day

A *The relatively higher amount of REM sleep that infants receive (approximately 50% of their sleep time) appears to indicate that REM sleep plays an important role in brain development.*

The interaction between cognitive processes of the brain and its structure including:
– roles of the central nervous system, peripheral nervous system (somatic and autonomic), and autonomic nervous system (sympathetic and parasympathetic)

Question 29

The human nervous system can be divided into: the Central Nervous System (CNS) which consists of the brain and spinal cord, and the

A. Parasympathetic Nervous System, which transmits sensory information from the body's muscles, organs and glands to the CNS, and motor information from the CNS to the body's muscles organs and glands.

B. Parasympathetic Nervous System, which transmits motor information from the body's muscles, organs and glands to the CNS, and sensory information from the CNS to the body's muscles organs and glands.

C. Peripheral Nervous System, which transmits sensory information from the body's muscles, organs and glands to the CNS, and motor information from the CNS to the body's muscles organs and glands.

D. Peripheral Nervous System, which transmits motor information from the body's muscles, organs and glands to the CNS, and sensory information from the CNS to the body's muscles organs and glands.

C *The human nervous system can be divided into the Central Nervous System and Peripheral Nervous System.*

Remember that the PNS has two roles:
1. sending sensory information from the body's muscles, organs and glands to the CNS, and
2. sending motor information from the CNS to the body's muscles organs and glands.

The interaction between cognitive processes of the brain and its structure including:
– roles of the central nervous system, peripheral nervous system (somatic and autonomic), and autonomic nervous system (sympathetic and parasympathetic)

Question 30

The fight-flight response is a direct function of

A. the Automatic Nervous System.

B. the Somatic Nervous System.

C. the Parasympathetic Nervous System.

D. the Sympathetic Nervous System.

D *The Sympathetic Nervous System is responsible for the fight-flight response.*

The Sympathetic Nervous System is a sub-branch of the Autonomic Nervous System, which is a sub-branch of the Peripheral Nervous System.

The effects of total and partial sleep deprivation:
– sleep-wake cycle shifts during adolescence compared with child and adult sleep including delayed onset of sleep and need for sleep

Question 31

For optimal functioning, an adolescent requires

A. more sleep than infants.

B. more sleep than the elderly.

C. approximately the same amount of sleep than the elderly.

D. at least 12 hours each night.

B *Infants require the greatest amount of sleep per day, and this decreases as age progresses.*

Contribution of studies to the investigation of cognitive processes of the brain and implications for the understanding of consciousness including: *– spatial neglect caused by stroke or brain injury*	**Question 32** Damage to Jen's left parietal lobe due to stroke or brain injury could result in **A.** an inability to see anything on Jen's right side. **B.** an inability to see anything on Jen's left side. **C.** an inability to pay attention to anything on Jen's right side. **D.** an inability to pay attention to anything on Jen's left side.	***C*** *Spatial neglect is an attentional disorder, not a defect of vision.*
Neural basis of learning: *– the development of neural pathways including the role of axons, dendrites, synapses and neurotransmitters*	**Question 33** What is a neural pathway? **A.** connections between the dendrites of several neurons **B.** a mind map **C.** a chain of neurons that connect one part of the nervous system to another **D.** a chain of neurons that connect one concept to another	***C*** *A neural pathway is a myelinated bundle of neural connections between one part of the nervous system and another.*
Neural basis of learning: *– the development of neural pathways including the role of axons, dendrites, synapses and neurotransmitters*	**Question 34** Long term potentiation means that **A.** axons and dendrites become bushier. **B.** new synaptic connections form. **C.** more neurotransmitters are released. **D.** all of the above processes are involved.	***D*** *Long term potentiation involves all three processes.*

Mechanism of memory formation: – consolidation theory

Question 35

In which of the following scenarios is long term memory likely to form, according to consolidation theory?

A. Tommy gets a severe hit to the head immediately following the learning of an opponent's name

B. Johnny has had time to rehearse a new name that he's learnt without disruption, and his hippocampus has converted this information from short term memory to long term memory

C. Ronny has processed a new name during conversation, but focuses on the conversation rather than the name

D. Jimmy has had time to rehearse a new skill that he's learnt without disruption, and his hippocampus has converted this information from short term memory to long term memory

B *Consolidation theory suggests that three things are required in order for memory formation:*
1. Time
2. Physical change in the brain
3. No disruption

D is not the best answer, as there is no clear empirical support for procedural memories undergoing the same consolidation process. Further, the hippocampus is primarily responsible for processing declarative memories rather than procedural ones.

Mechanism of memory formation: – memory decline over the lifespan

Question 36

When recognising the capitals of Australian states amongst distractors, it is likely that

A. a healthy elderly person would perform just as well as a healthy adult on this task.

B. a healthy elderly person would perform worse than a healthy adult on this task.

C. a healthy elderly person would perform better than a healthy adult on this task.

D. a healthy adult would perform worse on this task than a healthy infant.

A *The ability to recognise information does not decline with age, compared to recall.*

Mechanism of memory formation: – amnesia resulting from brain trauma and neurodegenerative diseases including dementia and Alzheimer's disease

Question 37

A person suffering from Alzheimer's disease is likely to experience

A. an inability to encode and store new memories.

B. a loss of memories stored before the development of Alzheimer's disease.

C. both anterograde amnesia which refers to the loss of memories stored before the development of Alzheimer's disease; and retrograde amnesia, which refers to the inability to encode and store new memories.

D. both anterograde amnesia which refers to the inability to encode and store new memories; and retrograde amnesia, which refers to the loss of memories stored before the development of Alzheimer's disease.

D *Alzheimer's disease involves both anterograde and retrograde amnesia.*

Anterograde amnesia is an inability to encode and store new memories.

Retrograde amnesia refers to a loss of memories stored before the development of Alzheimer's disease or some other brain injury.

Mechanism of memory formation: – amnesia resulting from brain trauma and neurodegenerative diseases including dementia and Alzheimer's disease

Question 38

Which of the following is most likely to develop first in Alzheimer's patients?

A. impaired procedural memory

B. impaired declarative memory

C. impaired speech

D. impaired recognition of family members

B *Procedural memories (such as speaking) and other very strongly stored memories are more resistant to forgetting than declarative memories, such as what day of the week it is.*

Models for explaining human memory: – Atkinson-Shiffrin's multi-store model of memory including maintenance and elaborative rehearsal, serial position effect and chunking

Question 39

What is the approximate capacity and duration of iconic memory?

A. unlimited; 3-4 seconds

B. 7± 2 pieces of information; 3-4 seconds

C. 7± 2 pieces of information; 0.2-0.4 seconds

D. unlimited; 0.2-0.4 seconds

D *The capacity of all sensory memory is unlimited, and the duration of iconic memory is approximately 0.2-0.4 seconds*

Models for explaining human memory: – Atkinson-Shiffrin's multi-store model of memory including maintenance and elaborative rehearsal, serial position effect and chunking

Question 40

It is hypothesised that the recency effect occurs because

A. the information at the end of a list is encoded into short term memory.

B. the information at the end of a list is encoded into long term memory.

C. the information at the beginning of a list is encoded into long term memory.

D. the information at the beginning of a list is encoded into short term memory.

A *It is hypothesised that the recency effect occurs because information at the end of a list is encoded into short term memory. This is because a delayed recall task will diminish the recency effect.*

Models for explaining human memory: – Atkinson-Shiffrin's multi-store model of memory including maintenance and elaborative rehearsal, serial position effect and chunking

Question 41

Which of the following would be most effective for encoding long term memories?

A. maintenance rehearsal
B. elaborative rehearsal
C. the primacy effect
D. the recency effect

B *Elaborative rehearsal is the most effective method for encoding long term memories as it creates more cues in linking new information with existing long term memories, aiding in its storage within a semantic network and retrieval.*

Models for explaining human memory: – levels of processing as informed by Fergus Craik and Robert Lockhart

Question 42

According to Craik and Lockhart's Levels of Processing theory, the least effective method of encoding memories would be to

A. memorise a list of words by observing their lower case or upper case structure.
B. memorise a list of words by thinking about how the words can be used in a sentence.
C. memorise a list of words by thinking about whether or not the words rhyme with another word.
D. memorise a list of words by thinking about the meaning of the words.

A *A shallow, structural level of encoding is less effective for memory retention than a deep, semantic level of encoding.*

Use the following information to answer Questions 43-45.

Woof, Sarah's dog, keeps barking. Sarah moves Woof outside.

Applications, and comparisons, of learning theories: – three-phase model of operant conditioning as informed by b.f. skinner: positive and negative reinforcement, response cost, punishment and schedules of reinforcement

Question 43

Because Woof loves the outdoors, he was happy to be moved outside. For him, this consequence is an example of

A. positive reinforcement.
B. negative punishment.
C. positive punishment.
D. response cost.

A *Being presented with the outdoors (positive) is something that Woof enjoys, which will increase the likelihood of repeating his barking behaviour (reinforcement).*

Applications, and comparisons, of learning theories: – three-phase model of operant conditioning as informed by b.f. skinner: positive and negative reinforcement, response cost, punishment and schedules of reinforcement

Question 44

Woof continues barking outside. To Sarah, this is an example of

A. positive reinforcement.
B. negative reinforcement.
C. positive punishment.
D. response cost.

C *Being presented with an unpleasant consequence (Woof's barking) will decrease the likelihood of Sarah moving Woof outside.*

Applications, and comparisons, of learning theories: – comparisons of classical and operant conditioning in terms of the processes of acquisition, extinction, stimulus generalisation, stimulus discrimination, spontaneous recovery, role of learner, timing of stimulus and response, and nature of response (reflexive/voluntary)

Question 45

Why is this scenario considered to be a form of operant conditioning?

A. both Woof and Sarah are active in the learning process
B. both Woof and Sarah are passive in the learning process
C. Woof's response was reflexive, whereas Sarah's response was voluntary
D. Sarah's response was reflexive, whereas Woof's response was voluntary

A *Operant conditioning involves the learner being active and receiving the consequence.*

Applications, and comparisons, of learning theories: – comparisons of classical and operant conditioning in terms of the processes of acquisition, extinction, stimulus generalisation, stimulus discrimination, spontaneous recovery, role of learner, timing of stimulus and response, and nature of response (reflexive/voluntary)

Question 46

After _____ has occurred, _____ means that the conditioned response may reappear after apparent _____.

A. extinction; spontaneous recovery; acquisition
B. spontaneous recovery; acquisition; extinction
C. spontaneous recovery; extinction; acquisition
D. acquisition; spontaneous recovery; extinction

D *Acquisition is the initial learning of a response, before extinction can occur. Spontaneous recovery occurs after apparent extinction.*

Applications, and comparisons, of learning theories: – applications of operant conditioning: shaping, token economies

Question 47

Which of the following describes shaping?

A. each approximate behaviour is successful, and is rewarded
B. each successful behaviour is approximate, and is rewarded
C. each successive behaviour that more closely approximates the desired response is rewarded
D. each behaviour is successive and approximately shows the desired response

C *Successive refers to a behaviour following another behaviour, not the successfulness of a behaviour.*

Approximation refers to a behaviour that is close or near to the desired behaviour.

The extent to which ethical principles were applied to classic research investigations into learning including John Watson's 'Little Albert' experiment	**Question 48** The most fundamental ethical principle that was breached in the 'Little Albert' experiment was **A.** withdrawal rights. **B.** informed consent. **C.** the distress of the participant. **D.** the no harm principle.	***D*** *The no harm principle is the underlying principle of all ethical principles; informed consent, debriefing, etc. are all done to ensure no harm comes to participants and to maintain participants' wellbeing.*
Concepts of normality and differentiation of mental health from mental illness	**Question 49** Being unable to maintain employment, hold relationships and live independently would be considered abnormal by the **A.** medical approach to normality. **B.** historical approach to normality. **C.** situational approach to normality. **D.** functional approach to normality.	***D*** *The functional approach to normality suggests that people are considered normal when they can live independently and effectively deal with the stressors of everyday life.*
Systems of classification of mental conditions and disorders: underlying principles of classification; strengths and limitations of discrete categorical (DSM-IV and ICD-10) and dimensional (graded and transitional) approaches to classification of mental disorders	**Question 50** The primary purpose of a classification system such as the DSM or ICD is to **A.** identify the causes of mental illness. **B.** identify symptoms and diagnose mental illness. **C.** identify the treatments for mental illness. **D.** identify areas for future research.	***B*** *Classification systems such as the DSM or ICD do not pinpoint the causes nor prescribe the treatments of mental illnesses. They can be used to identify areas for future research, but are primarily used to diagnose mental illness.*
Use of a biopsychosocial framework (the interaction and integration of biological, psychological and social factors) as an approach to considering physical and mental health	**Question 51** What is an advantage of using a biopsychosocial approach to the treatment of a mental illness? **A.** it encourages psychologists to involve the families and friends of the person suffering from mental illness **B.** it encourages psychologists to use drug therapies in the treatment of mental illness **C.** it allows psychologists to use non-drug therapies in the treatment of mental illness **D.** it allows for a more holistic consideration of the treatment of mental illness	***D*** *The biopsychosocial approach takes into consideration a range of drug, non-drug therapy, and social support treatments for mental illness. Therefore, it encourages psychologists to consider a more holistic range of treatment avenues.*

Physiological and psychological characteristics of responses to stress including fight-flight response, eustress and distress	**Question 52** Which of the following is a psychological characteristic of a response to stress? **A.** the fight-flight response **B.** activation of the hypothalamic-pituitary-adrenocortical (HPA) axis **C.** eustress and distress **D.** sweaty palms	***C*** *The fight-flight response and activation of the HPA axis are both physiological characteristics of a response to a stressor, whereas eustress and distress are psychological characteristics of a response to a stressor.*
Psychological determinants of the stress response; strengths and limitations of Richard Lazarus and Susan Folkman's Transactional Model of Stress and Coping	**Question 53** Which of the following is not considered a limitation of Lazarus and Folkman's Transactional Model of Stress and Coping? **A.** the model considers the psychological processes that underpin an individual's stress response **B.** it is difficult to test experimentally **C.** it is difficult to completely separate the process of primary and secondary appraisal **D.** cognitive processes such as appraisal may not necessarily be required for stress to occur	***A*** *To attempt to account for the cognitive processes that underpin stress is seen as an advantage and not a limitation of the Transaction Model of Stress and Coping.*
Social, cultural and environmental factors that exacerbate and alleviate the stress response	**Question 54** How are social factors that exacerbate the stress response different from cultural factors? **A.** social factors that exacerbate the stress response typically refer to negative interactions with others, whereas cultural factors refer to differences between shared values that could cause conflict **B.** social factors refer to positive interactions with others, whereas cultural factors refer to similarities between shared values that could cause conflict **C.** social factors and cultural factors can both include cognitive interpretations of various situations **D.** there is no difference between social factors and cultural factors	***A*** *Social factors refer to interactions with others, whereas culture refers to systems of shared values amongst people.*

Social, cultural and environmental factors that exacerbate and alleviate the stress response	**Question 55** Which of the following could be an example of a social factor that alleviates the stress response? **A.** will power **B.** reappraisal **C.** a cool breeze **D.** relationships	***D*** *Relationships with others are a social resource that can help to reduce stress.*
Allostasis (stability through change brought about by the brain's regulation of the body's response to stress) as a model that integrates biological, psychological and social factors that explain an individual's response to stress	**Question 56** Which of the following is true about allostasis? **A.** allostasis requires physiological stability. **B.** allostasis involves adapting biological systems, which can be assisted by psychological and/or social strategies, to achieve physiological stability **C.** allostasis always prevents stress-related illnesses **D.** allostasis always leads to stress-related illnesses	***B*** *It is important to note that in the study design, the key knowledge states that allostasis is a model that integrates biological, psychological and social factors. This means that psychological and/or social factors can help or hinder the body's ability to adapt to a stressor.*
Strategies for coping with stress including biofeedback, meditation/relaxation, physical exercise, social support	**Question 57** How is meditation different from relaxation? **A.** meditation is a relatively active strategy compared to relaxation **B.** mediation is a relatively passive strategy compared to relaxation **C.** both meditation and relaxation require equal amounts of effort **D.** both meditation and relaxation can result in reduced stress	***A*** *Meditation is an active process of focussing on an attentional object (breath, the current moment, etc.) and ignoring other stimuli, whereas relaxation often includes the process of releasing tension in one's muscles.* *While D is true, it does not answer the question as it is not a difference between the two strategies.*
Strategies for coping with stress including biofeedback, meditation/relaxation, physical exercise, social support	**Question 58** How is physical exercise different from social support? **A.** physical exercise is a psychological strategy to cope with stress, whereas social support is a physiological strategy **B.** physical exercise is a more effective strategy to cope with stress than seeking social support **C.** social support is a more effective strategy to cope with stress than physical exercise **D.** physical exercise may provide an avenue for people to expel built-up physiological tension, whereas social support may provide people with extra resources to cope with the stressor	***D*** *B and C may be true in certain circumstances (for example, it may be more beneficial in the long term to seek the help of a family member if in financial difficulty, which may more directly alleviate the stressor [a problem-focused approach] as opposed to going for a jog to get your mind off the stressor [an emotion-focused approach), however this may not always be the case.*

Use the following information to answer Questions 59-62.

Professor Tam wanted to investigate whether meditation was more effective at reducing stress than physical exercise or no coping strategy at all.

She tested this by getting a sample of 90 participants from her classes and divided them evenly into three groups:
Group 1: 30 minutes of meditation every day for a week
Group 2: 30 minutes of running on a treadmill at 10km/h for a week
Group 3: no specific coping method administered over a week

Each day of the week, participants were given a stressful task involving answering a phone, scheduling a meeting of three managers with different availabilities, and making a cup of coffee. A shorter amount of time to complete this task was said to indicate a clearer mind and less stress.

Experimental research: identification and operationalisation of independent and dependent variables

Question 59

What is the operationalised independent variable?

A. meditation for 30 minutes every day for a week

B. meditation for 30 minutes every day for a week, or 30 minutes of running on a treadmill at 10km/h for a week, or not being given a specific coping strategy

C. a stressful task involving answering a phone, scheduling a meeting of three managers with different availabilities, and making a cup of coffee

D. the amount of time it took to complete a stressful task involving answering a phone, scheduling a meeting of three managers with different availabilities, and making a cup of coffee

B *Operationalisation of the independent variable must include how each group of the experiment (including control group) will be administered.*

Experimental research: identification of extraneous and potential confounding variables including individual participant differences, non-standardised instructions and procedures, order effects, experimenter effect, placebo effects

Question 60

What would be the most effective strategy for Professor Tam to use in order to reduce experimenter effects?

A. ensure the sample was representative of the population
B. ensure that Professor Tam is as impartial as possible by not wanting to see particular results in the experiment
C. ensure that all of the groups in the experiment were administered their conditions by an assistant
D. ensure that all of the groups in the experiment were administered their conditions by separate assistants for each group

D *While C may help to reduce experimenter effects as the assistant may not have as much of an expectation of the results as the experimenter Professor Tam, the assistant may have his/her own expectations which may be more pronounced if the assistant administers all the groups of the experiment. Multiple assistants cannot make comparisons between groups if they only administer one group, which may reduce bias.*

Sampling procedures in selection and allocation of participants: random sampling; stratified sampling; random-stratified sampling; convenience sampling; random allocation of participants to groups; control and experimental groups

Question 61

The experimental group/s was/were

A. group 1.
B. group 2.
C. group 3.
D. groups 1 and 2.

D *Both groups 1 and 2 are considered experimental groups as they both contain an actively administered independent variable.*

Techniques of qualitative and quantitative data collection: case studies; observational studies; self-reports; questionnaires

Question 62

What other methods of data collection could Professor Tam use to collect qualitative information about participants' levels of stress?

A. a case study
B. an observational study using video monitoring of facial expressions during the stressful task
C. questionnaires using a 5 point rating scale (strongly agree to strongly disagree) on statements such as 'I felt a lot of stress during the task'
D. calculating the mean, median and modes of time taken to complete the stressful task

B *Qualitative data can be collected through observational methods such as facial expressions of stress, as opposed to quantitative data collected through a 5 point rating scale or calculations of mean, median and mode. A case study cannot be used as Professor Tam is in control of manipulating the independent variables in the experiment.*

Manipulation and improvement of memory: – effect of misleading questions on eye-witness testimonies including the reconstructive nature of memory informed by the work of Elizabeth Loftus	**Question 63** Chloe saw Sam taking a couple of pens out of Gemma's pencil case while Gemma went to the bathroom. Gemma was very upset that someone had stolen her favourite pens. When Ms Defenestra finds out a week later and quizzes Chloe as a witness, which of the following questions would most likely lead to Chloe reporting a larger number of pens stolen? **A.** how many pens were taken? **B.** did Sam take Gemma's pens? **C.** how many pens did Sam take? 1? 2? 3? **D.** how many pens did Sam take? 1? 5? 10?	***D*** *The question with higher numbers in it leads the witness to answer a higher number of pens stolen, compared with a lower number or no suggestion at all.*
Behaviours not dependent on learning including reflex action, fixed action patterns and behaviours due to physical growth and development (maturation)	**Question 64** Salmon swimming upstream to lay eggs would be an example of **A.** a reflex action. **B.** a conditioned response. **C.** a fixed action pattern. **D.** a behaviour due to maturation.	***C*** *This is an example of a fixed action pattern because the behaviour is species-specific, and is a relatively complex behaviour.*
Psychological determinants of the stress response; strengths and limitations of Richard Lazarus and Susan Folkman's Transactional Model of Stress and Coping	**Question 65** Gemma is stressed about the Year 12 exams she has coming up. She decides to meditate to reduce her levels of stress. Meditation is an example of **A.** a problem-focused coping strategy. **B.** an emotion-focused coping strategy. **C.** a primary appraisal. **D.** a benign-positive appraisal.	***B*** *Meditation does not help to manage the stressor directly, but rather helps to regulate the emotional responses to the stressor.*

Section B Assessment Guide – Psychology 2014

VCAA Key Knowledge	Question	Answer guide
Sleep-wake cycle shifts during adolescence compared with child and adult sleep including delayed onset of sleep and need for sleep	**Question 1** (4 marks) Describe the typical sleep patterns of infants compared to adolescents, with reference to time and percentage of rapid eye movement (REM) sleep.	***Answer:*** • *Infants spend most of their time (approximately 16 hours) asleep, with REM sleep taking up approximately 50% of their sleep time, whereas adolescents need to spend 9-10 hours of sleep each night, with REM sleep taking up approximately 20% of their sleep time.* ***Marking protocol:*** • *Two marks for describing the time spent asleep in infants compared to adolescents (OR a description of adolescent sleep wake-cycle shift compared to infants sleeping for most of their time).* • *Two marks for describing the approximate proportions of REM sleep.*
Sleep as an altered state of consciousness: characteristics and patterns of the stages of sleep including rapid eye movement (REM) and the non-rapid eye movement (NREM) stages of sleep	**Question 2** (2 marks) What would an electroencephalograph (EEG) show when a person is in stage 2 non-rapid eye movement (NREM) sleep compared to rapid eye movement (REM) sleep?	***Answer:*** • *Stage 2 NREM: Mainly theta waves, with sleep spindles and K complexes.* • *REM: beta-like/sawtooth waves.* ***Marking protocol:*** *One mark for each of the above points.*

Use the following information to answer Question 3.

Ms Muffet decides to run two separate experiments using the students in her two Units 3&4 Psychology classes. Students and their parents were informed of the aim and procedures of the experiment and signed a consent form, knowing that their participation would contribute to their SAC marks.

In one experiment with class 1, she tries to teach students to associate the ring of a bell with a blinking response.

- On Monday, she tests whether or not students blink when she rings a bell.
- On Tuesday, she rings a bell at the beginning of class, and blows a harmless puff of air into each of the students' eyes one hour later, at the end of the lesson.
- On Wednesday, Ms Muffet tests if the students blink when she rings a bell.

In a different experiment with class 2, she tries to teach students to say 'thank-you', every time she hands out a worksheet.

- On Monday, she tests whether or not students thank her when she hands out worksheets.
- On Tuesday, students are rewarded with a star stamp at the end of the period, provided that they said 'thank-you' after being given a worksheet at any time within the period. Ms Muffet tells students that five star stamps can be traded for a chocolate. She repeats this process in class on Wednesday.
- On Thursday, Ms Muffet then tests if students say 'thank-you' when she hands out a new worksheet.

All students were debriefed about their respective experiments, and the results were de-identified.

Applications, and comparisons, of learning theories: – three-phase model of operant conditioning as informed by B.F. Skinner: positive and negative reinforcement, response cost, punishment and schedules of reinforcement

– classical conditioning as informed by Ivan Pavlov: roles of neutral, unconditioned, conditioned stimuli; unconditioned and conditioned responses

Question 3a. (6 marks)
Using the language of operant conditioning and classical conditioning, explain which theory of learning Ms Muffet tried to use in each class.

Answer:

- *Class 1: classical conditioning.*
- *Ms Muffet tried to use classical conditioning by pairing a neutral stimulus (the bell) with an unconditioned stimulus (the puff of air blown into students' eyes) to produce a conditioned response (blinking when the bell rings).*

- *Class 2: operant conditioning (or token economy).*
- *Ms Muffet used the discriminative stimulus of students receiving a worksheet to elicit a behaviour (thanking) which would result in a reinforcer (star stamp).*

Marking protocol:

- *One mark for identifying the correct theory of learning used in each class, to a total of two marks.*
- *One mark for reference to the language of classical conditioning or operant conditioning, to a total of two marks.*
- *One mark for linking the language of classical conditioning to the scenario or operant conditioning to the scenario, to a total of two marks.*

Ms Muffet summarised the results.

In class 1, she found that 100% of students did not blink when she rang the bell on Monday, and 95% of students did not blink when she rang the bell on Wednesday.

In class 2, she found that 30% of students thanked her when she handed out a worksheet on Monday, and 80% of her students thanked her when she handed out a new worksheet on Thursday.

Applications, and comparisons, of learning theories: – comparisons of classical and operant conditioning in terms of the processes of acquisition, extinction, stimulus generalisation, stimulus discrimination, spontaneous recovery, role of learner, timing of stimulus and response, and nature of response (reflexive/voluntary)

Question 3b. (4 marks)
Why was Ms Muffet's conditioning of students more effective in class 2 compared to class 1? What could Ms Muffet do to improve the students' conditioning in both classes?

Answer:

- *Classical conditioning typically requires the presentation of a neutral stimulus and unconditioned stimulus in close temporal (time) proximity to each other, which did not occur in class 1, whereas in operant conditioning, the behaviour/response does not necessarily require immediate reinforcement, which occurred in class 2.*
- *In class 1, Ms Muffet should ensure that the unconditioned stimulus (puff of air) is presented immediately after the neutral stimulus (bell).*
- *In class 2, Ms Muffet should ensure that the reinforcer (the star stamp) shortly follows the behaviour (thanking).*

Marking protocol:

- *One mark for the timing of stimulus/response in classical conditioning.*
- *One mark for the timing of response/consequence in operant conditioning.*
- *One mark for reference to the puff of air being presented immediately after the bell.*
- *One mark for reference to the star stamp being awarded shortly after the thanking behaviour.*

Applications, and comparisons, of learning theories: – applications of operant conditioning: shaping, token economies – three-phase model of operant conditioning as informed by B.F. Skinner: positive and negative reinforcement, response cost, punishment and schedules of reinforcement

Question 3c. (2 marks)
The star stamp can be considered a _____, which has no value in itself, and was administered using a _____ schedule of reinforcement.

Answer:

- *token*
- *fixed interval*

Marking protocol:
One mark for each of the above points.

In class 2, Johnny, despite knowing that students are receiving stamps and chocolates for thanking Ms Muffet when she hands out worksheets, appears not to have learnt to thank Ms Muffet when she hands out worksheets.

Applications, and comparisons, of learning theories: – three-phase model of operant conditioning as informed by B.F. Skinner: positive and negative reinforcement, response cost, punishment and schedules of reinforcement	**Question 3d.** (1 mark) What could be an explanation for Johnny's reluctance to thank Ms Muffet?	***Answer:*** • *Reinforcement needs to be <u>appropriate</u> for the individual being conditioned. For example, Johnny may dislike/be allergic to chocolate.* ***Marking protocol:*** *One mark for the above point.* *Note that answers may vary; Johnny may dislike Ms Muffet and gets reinforced when Ms Muffet gets upset when he doesn't thank her. However, even in this case, it could be argued that Ms Muffet is not appropriately reinforcing Johnny, and that if she found the right reinforcement, Johnny would be more likely to thank her.*
Applications, and comparisons, of learning theories: – three-phase model of operant conditioning as informed by B.F. Skinner: positive and negative reinforcement, response cost, punishment and schedules of reinforcement	**Question 3e.** (1 mark) What could Ms Muffet do to more effectively condition Johnny?	***Answer:*** • *Ms Muffet could ask Johnny what would be an appropriate reward for him to trade in for his star stamps.* ***Marking protocol:*** *One mark for the above point.*
Applications, and comparisons, of learning theories: – comparisons of classical and operant conditioning in terms of the processes of acquisition, extinction, stimulus generalisation, stimulus discrimination, spontaneous recovery, role of learner, timing of stimulus and response, and nature of response (reflexive/voluntary)	**Question 3f.** (2 marks) Tim, one of the students from class 2, noticed that he also began to thank other teachers whenever they handed out worksheets. In terms of a process of operant conditioning, what has occurred? Explain your answer.	***Answer:*** • *Stimulus generalisation has occurred.* • *The response of thanking has been applied to other similar antecedent situations where teachers hand worksheets to Tim.* ***Marking protocol:*** *One mark for each of the above points.*

Manipulation and improvement of memory: *- mnemonic devices including acrostics*	**Question 4** (3 marks) With reference to encoding, storage and retrieval, explain why the use of an acrostic such as 'Never Eat Soggy Weetbix' could be helpful to remember the four points of a compass, in clockwise order.	***Answer:*** • *Encoding: an acrostic allows for a deeper level of encoding (from short term memory to long term memory), because it (Never Eat Soggy Weetbix) provides more detail and elaboration of North, East, South and West.* • *Storage: an acrostic allows for more robust storage of the information in the semantic network of long term memory as links are made between the acrostic and the points of a compass, in clockwise order.* • *Retrieval: more easily accessible cues are available to assist in locating and recovering relevant information (when you want to retrieve the words, you would go through the acrostic and remember the points of a compass in clockwise order).* ***Marking protocol:*** *One mark for each of the above points.* *Responses should include reference to retrieval of information in clockwise/serial order.*
Organisation of long-term memory including declarative (episodic and semantic) and procedural memory, and semantic network theory	**Question 5** (3 marks) Collins and Quillian's (1969) research showed that it took longer for someone to agree with the statement that 'a canary has skin', compared to the statement that 'a canary can sing'. With a definition of semantic network theory, explain why this would occur.	***Answer:*** • *Semantic network theory suggests that concepts (nodes) are linked meaningfully in a hierarchical structure.* • *The statement that 'a canary can sing' only requires the person to retrieve properties (singing) stored at that node (canary) [alternatively: linked closely to that node], therefore, it can be verified relatively quickly.* • *The statement that 'a canary has skin' requires the person to retrieve information that is linked further away (higher up in the hierarchy); making the inference that a canary is an animal, and that animals have skin. Therefore, the statement takes a relatively longer time to verify.* ***Marking protocol:*** *One mark for each of the above points.*

Use the following information to answer Question 6.

Bobby is scared of bees, and actively tries to forget the moment he got stung when he was younger. Whenever he sees a bee flying around, hears the buzzing of bees, or is unfortunate enough to have a bee land on him, he freezes until the bee flies away.

Mechanism of memory formation: *- role of the temporal lobe including the amygdala*	**Question 6a.** (1 mark) Which area of Bobby's temporal lobe has been responsible for linking the fearful emotion to bees?	***Answer:*** • *The amygdala.* ***Marking protocol:*** *One mark for the above point.*

The interaction between cognitive processes of the brain and its structure including: – roles of the central nervous system, peripheral nervous system (somatic and autonomic), and autonomic nervous system (sympathetic and parasympathetic)

Question 6b. (4 marks)
Explain which sub-systems of the human nervous system are being activated when Bobby sees a bee, and when the bee flies away. List one effect that each system activates.

Answer and marking protocol:

- *When Bobby sees a bee, his sympathetic nervous system activates. (1 mark)*
- *When Bobby sees the bee fly away, his parasympathetic nervous system counteracts his sympathetic nervous system activity. (1 mark)*

- *One effect of the sympathetic nervous system is the inhibiting Bobby's digestion, with the parasympathetic nervous system's counter-effect of stimulating Bobby's digestion to normal levels. (2 marks)*

OR ANY OF THESE ALTERNATIVES:

Sympathetic Nervous System	***Parasympathetic Nervous System***
Dilates pupils	*Constricts pupils*
Lowered stimulation of salivary glands	*Normal stimulation of salivary glands*
Increases heart rate	*Decreases heart rate*
Dilates bronchi	*Constricts bronchi*
Relaxes bladder	*Contracts bladder*

The interaction between cognitive processes of the brain and its structure including:
- roles of the four lobes of the cerebral cortex in the control of motor, somatosensory, visual and auditory processing in humans; primary cortex and association areas

Question 6c. (4 marks)
Fill in the lobes and primary areas of Bobby's brain in his identification and response to a bee.

Answer:

Role	Lobe of the brain	Primary cortex
Identifies a bee by hearing it buzzing	***Temporal lobe***	***Primary auditory cortex***
Identifies a bee by seeing it	***Occipital lobe***	***Primary visual cortex***
Identifies a bee landing on him through touch sensation	***Parietal lobe***	***Primary somatosensory cortex***
Inhibits Bobby's movement until the bee flies away	***Frontal lobe***	***Primary motor cortex***

Marking protocol:
One mark for each correct row.

The interaction between cognitive processes of the brain and its structure including:
- roles of the four lobes of the cerebral cortex in the control of motor, somatosensory, visual and auditory processing in humans; primary cortex and association areas

Question 6d. (2 marks)
Describe the role of Bobby's association areas in his parietal and temporal lobes in his identification of a bee.

Answer:

- *The temporal lobe association areas would help Bobby identify <u>what</u> the flying object is (for example, helping him to distinguish whether it is a bee or a fly).*
- *The parietal lobe association areas would help Bobby identify <u>where</u> the bee is in space/relation to him.*

Marking protocol:
One mark for each of the above points.

Applications, and comparisons, of learning theories: - applications of classical conditioning: graduated exposure *Application of a biopsychosocial framework to understanding the relationship between stress and physical and mental wellbeing: – strategies for coping with stress including biofeedback, meditation/relaxation, physical exercise, social support*	**Question 6e.** (4 marks) Dr Ong, Bobby's psychologist, tries to help Bobby overcome his fear of bees. What steps would need to occur if Dr Ong wanted to use graduated exposure and biofeedback to help Bobby overcome his fear of bees?	***Answer:*** • *An increasingly frightening hierarchy of bee-related stimuli are presented to Bobby.* • *Relaxation techniques (such as progressive muscle relaxation) are paired with each step in the hierarchy.* • *A biofeedback device would provide feedback on the effectiveness of the relaxation technique by showing e.g. muscle tension, heart rate and/or Galvanic Skin Response.* • *The biofeedback information can be used to master the relaxation techniques (e.g. only moving to another more frightening level in the hierarchy once Bobby has effectively and efficiently learned to relax to a previous level), and help him to elicit a relaxation response in future.* ***Marking protocol:*** *One mark for each of the above points.*
Applications, and comparisons, of learning theories: - applications of classical conditioning: graduated exposure	**Question 6f.** (3 marks) What is flooding, and why might it be less helpful for Dr Ong to use flooding over graduated exposure?	***Answer:*** • *Flooding uses exposure to the actual feared stimulus (bees) as opposed to a gradual and increasingly intense presentation of the feared stimulus in graduated exposure.* • *Flooding may cause Bobby undue stress and affect his psychological wellbeing, which may not help him overcome his fear of bees.* • *Graduated exposure should allow Bobby to progressively learn to relax at the presentation of increasingly intense stimuli, and Dr Ong can easily stop the progression of the stimuli when Bobby is overwhelmed.* ***Marking protocol:*** *One mark for each of the above points.*
Models for explaining human memory: - Alan Baddeley and Graham Hitch's model of working memory: central executive, episodic buffer	**Question 6g.** (4 marks) Identify the two functional components of Baddeley and Hitch's model of working memory, and explain the role of each of these components with respect to Bobby's graduated exposure therapy.	***Answer:*** • *Episodic buffer: at the direction of the central executive, the episodic buffer would initially retrieve stored memories about bees, and later update these memories with new information.* • *Central executive: switches Bobby's attention to the stimuli he is presented by the therapist, inhibits distracting information, and directs the episodic buffer to update information about the non-threatening nature of bees.* ***Marking protocol:*** *Two marks for each of the above points, to a maximum of four.*

Manipulation and improvement of memory: *- use of context dependent cues and state dependent cues*	**Question 6h.** (2 marks) Despite Bobby's best attempts to supress his memory of being stung by a bee when he was younger, this traumatic memory is often retrieved. With reference to state-dependent cues and context-dependent cues, describe two situations that may elicit Bobby's traumatic memory.	***Answer:*** • *State-dependent cues: whenever Bobby feels anxious about a test or anything else, he remembers being stung by a bee as his anxiousness acts as a retrieval cue to the incident of being stung.* • *Context-dependent cues: whenever Bobby sees a bee, this situation acts as a retrieval cue to the incident of being stung.* ***Marking protocol:*** *One mark for each of the above points.* *No marks awarded if the example does not correctly relate to state-dependent or context-dependent cues.*
Neural basis of learning: *– developmental plasticity and adaptive plasticity of the brain: changes to the brain in response to learning and experience; timing of experiences*	**Question 7** (2 marks) The sensitive period for learning spoken language is up to 12 years. Define sensitive periods, and with reference to the sensitive period for spoken language, discuss the implications of not detecting a hearing impairment in childhood.	***Answer:*** • *Sensitive periods refer to the optimal times that certain things can be learned by a developing individual.* • *It would be more difficult for a hearing impaired child to learn spoken language later in life because his/her sensitive period would have elapsed if this impairment was not corrected.* ***Marking protocol:*** *One mark for each of the above points.*
Contribution of studies to the investigation of cognitive processes of the brain and implications for the understanding of consciousness including: *- studies of aphasia including Broca's aphasia and Wernicke's aphasia*	**Question 8a.** (3 marks) Jesse has difficulties with speaking. An example of his speech is: "B….b…bus s…s…st…stop" Which language area of Jesse's brain is not functioning properly in this situation? Give two reasons for your answer.	***Answer:*** • *Broca's area.* • *Jesse's speech is deliberate, but is non-fluent.* • *Jesse's speech is meaningful.* • *Jesse primarily uses nouns and verbs, omitting other parts of speech.* ***Marking protocol:*** *One mark for the first point, and one mark each up to two marks for any of the following points.*
Contribution of studies to the investigation of cognitive processes of the brain and implications for the understanding of consciousness including: *- studies of aphasia including Broca's aphasia and Wernicke's aphasia*	**Question 8b.** (3 marks) What other area of the brain is responsible for language processing? List two symptoms of damage to this area.	***Answer:*** • *Wernicke's area.* • *Difficulties understanding (written and spoken) language.* • *Difficulties producing meaningful (written and spoken) language.* • *Nonsense words are used.* • *Speech is fluent.* • *Often are unaware of their aphasia.* ***Marking protocol:*** *One mark for the first point, and one mark each up to two marks for any of the following points.*

Section C Assessment Guide – Psychology 2014

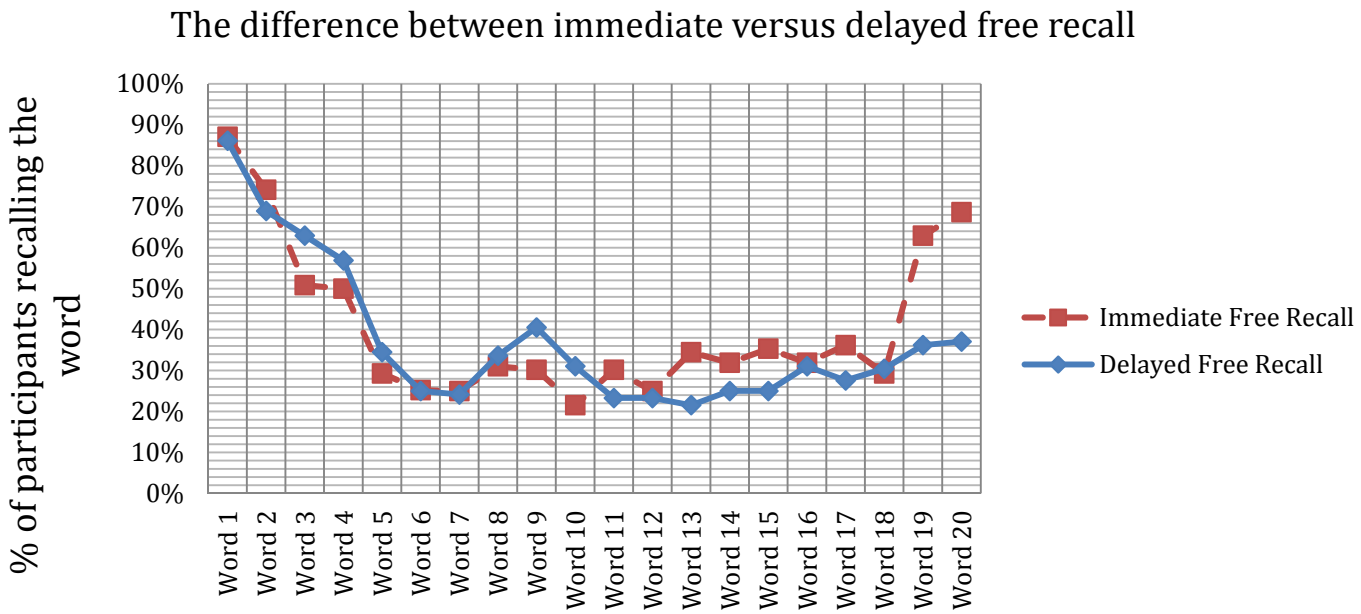
Ms Holmes wanted to compare the effects of immediate free recall and delayed free recall on the serial position effect in the population of VCE Psychology students in 2014.

She generated a sample using a list of all 2014 VCE Psychology students' names and a random-number generator on her computer. All 500 students selected were happy to take part in the study, as she offered them $50 as an incentive. Informed consent documents were signed, and participants could withdraw at any time, without any consequence. Participants were randomly allocated into two separate groups.

In Group 1: Immediate Free Recall, the participants were required to memorise a list of 20 simple nouns, and then asked to write down as many words as they could remember, in any order.

In Group 2: Delayed Free Recall, the participants were required to memorise the same list of 20 simple nouns, asked to count backwards from 60 by twos, and then asked to write down as many words as they could remember, in any order.

Her results are shown in the graph below.



In this study, Ms Holmes used word 20, the final word in the list, to be a measure of the recency effect. Inferential statistics were calculated from the data on word 20, and Ms Holmes found a p value of $p = 0.03$. She deemed $p \leq 0.05$ as being statistically significant.

Participants were debriefed after the study, and all results were not traceable to individual participants.

VCAA Key Knowledge	Question	Mark by mark answer guide
Sampling procedures in selection and allocation of participants: random sampling; stratified sampling; random-stratified sampling; convenience sampling; random allocation of participants to groups; control and experimental groups	**Question 1** (2 marks) Identify the sampling procedure used by Ms Holmes to collect data for this experiment. Explain your answer in relation to the scenario.	***Answer:*** • *Random sampling.* • *Every member of the population of VCE Psychology students in 2014 had an equal chance of being selected for Ms Holmes' sample.* ***Marking protocol:*** *One mark for each of the above points.* *A response such as "the students were picked randomly" is not sufficient for a mark.* *For a mark, students can mention that the selection of one participant would not affect the selection of another.*
Experimental research: evaluation of different types of experimental research designs including independent-groups, matched-participants, repeated-measures; reporting conventions as per American Psychological Association (APA) format	**Question 2** (1 mark) What is an advantage of using an independent-groups design compared to a counterbalanced repeated-measures design in Ms Holmes's study?	***Answer:*** • *An independent-groups design would more likely reduce the amount of drop-outs from the study, as participants only have to be tested once, as opposed to the repeated-measures design where participants have to be tested twice.* • *An independent-groups design which randomly allocates a large sample to different groups will likely produce a fairly equivalent spread of participant variables, alongside fewer demands on participants during the study.* ***Marking protocol:*** *One mark for any of the above points.*
Ethical principles and professional conduct: the role of the experimenter; protection and security of participants' rights; confidentiality; voluntary participation; withdrawal rights; informed consent procedures; use of deception in research; debriefing.	**Question 3** (2 marks) Was the ethical principle of voluntary participation upheld by Ms Holmes in this study? Justify your answer.	***Answer:*** • *Yes, voluntary participation was upheld.* • *Despite being rewarded $50 to take part in the study, participants were not forced or coerced into taking part. (A monetary incentive does not mean that the students could not freely choose to participate or not)* ***Marking protocol:*** *One mark for each of the above points.*

Experimental research: construction of research hypotheses; identification and operationalisation of independent and dependent variables; identification of extraneous and potential confounding variables including individual participant differences, non-standardised instructions and procedures, order effects, experimenter effect, placebo effects; ways of minimising confounding and extraneous variables including type of sampling procedures, type of experiment, counterbalancing, single and double blind procedures, placebos, standardised instructions and procedures; evaluation of different types of experimental research designs including independent-groups, matched-participants, repeated-measures; reporting conventions as per American Psychological Association (APA) format

Statistics: measures of central tendency including mean, median and mode; interpretation of p-values and conclusions; evaluation of research in terms of generalising the findings to the population

Question 4 (10 marks)
Write a possible research hypothesis and components of a discussion section for Ms Holmes's experiment. Use appropriate conventions of psychological report writing.

In your response, include the following:

- Research hypothesis
- Potential extraneous variables and ways to control for them in future
- A conclusion and a possible generalisation

Answer:

An excellent response would:

- *Use the reporting conventions of APA format.*
- *Write a testable hypothesis which would include the IV, DV, population, direction (e.g. more words than…) and control group.*
- *Outline the effects of any potential extraneous variables on the DV.*
- *Justify conclusions with relation to the data provided.*
- *Discuss the reasons why the findings could be generalised (i.e. the statistical significance of the results, the representative sample used, and the control of extraneous variables).*

Sample answer: (note that answers will vary, and that 10 points are not necessary for 10 marks)

- *It was hypothesised that VCE Psychology students in the immediate free recall group would be more likely to recall the final word in the list of 20 simple nouns (showing the recency effect) compared to the delayed free recall group.*

- *Given the independent-groups design, individual participant differences, such as greater Short Term Memory capacity, may have increased recall of the final word of the list, despite either having or not having to undergo a delay task. To control this in future, Ms Holmes could employ a matched-participants design where participants undergo a Short Term Memory pre-test and are evenly allocated to Group 1 or Group 2.*
- *Another potential extraneous variable could have been the nouns that were used to test the serial position effect. For example, it appears that there was relatively higher recall of Word 9 in the list compared to Word 8 and 10, particularly in the delayed free recall group, which may have affected the recall of the final word. It could be hypothesised that Word 9 was a particularly salient word that had greater meaning for participants compared to other words. This may have cued surrounding words, and de-emphasised the salience or meaningfulness of the final word. To control this in future, this word should be removed from the list, to avoid it potentially affecting recall of the final word.*

- *The hypothesis was supported, as more participants (approximately 69%) in the immediate free recall group recalled Word 20 compared to the delayed free recall group (approximately 37%). Furthermore, there was a statistically significant difference between the two groups, with the probability of the results being due to chance being 3 in 100.*
- *A tentative generalisation of this finding to the population of VCE Psychology students in 2014 can be justified given that the random sample used in this study is theoretically a representative sample of the population, and the results are statistically significant. However, given the extraneous variables outlined above, it may be prudent to suggest that future studies take steps to minimise these extraneous variables with a new sample, in order to fully justify generalisations to the population.*

VCE PSYCHOLOGY
Written Examination

ANSWER SHEET – 2014

STUDENT NAME:

Use a **PENCIL** for **ALL** entries. For each question, shade the box which indicates your answer.

Marks will **NOT** be deducted for incorrect answers.

NO MARK will be given if more than one answer is completed for any question.

If you make a mistake, **ERASE** the incorrect answer – **DO NOT** cross it out.

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