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15 JAN 2025

THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF PSYCHOLOGY & COUNSELLING
ACADEMIC YEAR 2024/2025– SEMESTER I

BSC HONS IN PSYCHOLOGY
PLU5310 – NEUROPSYCHOLOGY - LEVEL 5
CONTINOUS ASSESSMENT TEST – NBT I
DURATION: 1 ½ HOURS

DATE: 15th JANUARY 2025 TIME: 9.00 A.M. – 10.30 A.M.

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IMPORTANT INSTRUCTIONS/ INFORMATION TO CANDIDATES

- This question paper consists of **09 pages** with **TWO sections**

  Section 1: 20 Multiple Choice Questions - (40 Marks)

  Section 2: 12 Short Answer Questions - (60 Marks)

- Write your INDEX number in the space provided.
- **Multiple Choice Questions (Section 1):** Indicate answers in the **ANSWER SHEET** provided by placing a cross **(X)** in **INK** in the relevant cage (answers in pencil will **NOT** be marked)
- **Short Answer Questions (Section 2):** Write the answer within the space provided.
- Do **NOT** remove any page/part of this question paper from the examination hall.
- Do **NOT** keep unauthorized materials, including mobile phones and other electronic equipment, with you during the examination

SECTION 1: Multiple Choice Questions (20 Questions-40 Marks)

1.1 The study of biopsychology has evolved significantly over time, including various subfields. How does comparative psychology contribute to our understanding of human behaviour?

a) By focusing exclusively on lab-based and natural environment studies of animal behaviour
b) By studying the brain's physiological processes and its relationship to human cognition
c) By analysing behavioural adaptations in natural environments and comparing them to those observed in humans
d) By exploring the effects of medications and other substances/drugs on the neural processes of animals

1.2 During early neural development, the formation of the neural crest is significant for producing which.of the following structures?

a) Cerebral hemispheres, Spinal cord structure, and the optic chiasm
b) Peripheral ganglia, adrenal medulla, and craniofacial cartilage
c) Spinal cord, hindbrain, and pituitary gland including hypothalamus
d) Hippocampus, thalamus, basal ganglia, and limbic system

1.3 Which of the following describes the primary function of the hypothalamus?

a) Control of endocrine activity, hunger, and thermoregulation
b) Regulation of emotional responses and long-term memory formation
c) Coordination of voluntary movements and posture maintenance
d) Integration of sensory signals for spatial navigation

1.4 Which of the following stages of sleep is characterized by low-frequency, high-amplitude delta waves?

a) REM sleep
b) Stage 1 non-REM sleep
c) Stage 2 non-REM sleep
d) Stage 3 and 4 non-REM sleep

1.5 Which hormone is primarily responsible for regulating the circadian sleep-wake cycle?

a) Serotonin
b) Cortisol
c) Melatonin
d) Dopamine

1.6 Which of the following is one of the primary functions of the limbic system?
- a) Regulating voluntary muscle movements
- b) Processing emotional responses and memory formation
- c) Facilitating auditory and visual perception
- d) Controlling reflex arcs

1.7 Which brain structure is primarily activated during moral dilemmas involving emotional components?
- a) Hippocampus
- b) Ventromedial prefrontal cortex
- c) Thalamus
- d) Basal ganglia

1.8 How does the rubber hand phenomenon contribute to our understanding of self-perception?
- a) It demonstrates that feelings of body ownership depend on genetic predispositions
- b) It shows that self-perception is unrelated to visual stimuli
- c) It highlights the brain's ability to integrate external stimuli into a sense of self
- d) It reveals that consciousness is unaffected by sensory manipulation

1.9 What is the term for the junction between two neurons?
- a) Axon
- b) Soma
- c) Synapse
- d) Myelin sheath

1.10 According to APA guidelines, which of the following is a requirement when using animals in research?
- a) Ensuring animals are kept in only natural environments rather than laboratory conditions
- b) Minimizing discomfort only if it does not interfere with the research goals
- c) Conducting research only with species not protected under federal laws
- d) Providing proper instruction to individuals involved in handling the species used

1.11 Which of the following best describes the role of a behavioural neuroscientist?
- a) Diagnosing and treating diseases of the nervous system and endocrine system in clinical settings.
- b) Observing behavioural phenomena in both nonhuman and human animals to study the physiology of behaviour
- c) Conducting experiments exclusively on the effects of neurological injuries
- d) Developing treatment plans for brain disorders among young and elderly populations

1.12 How does information flow within and between neurons during neural signal transmission?

a) The signal starts at the myelin sheath, moves along the axon, releases neurotransmitters
b) The signal begins at the axon hillock, travels down the axon, releases neurotransmitters
c) The signal starts in the soma, travels through the dendrites, is sent as a chemical signal at the synapse
d) The signal starts in the terminal buttons, travels backward along the axon

1.13 Which structures are primarily connected by the corpus callosum?

a) The thalamus to the cerebral cortex
b) The left and right cerebral hemispheres
c) The sensory organs to the brain
d) The parietal and occipital lobes

1.14 Phrenology faced widespread criticism during the 19th century. What experimental evidence by Jean Pierre Flourens contributed to the decline of phrenology as a scientific theory?

a) Studies indicating that brain damage correlates more with the extent of injury than its location
b) The discovery that neurotransmitters regulate brain activity and personality traits
c) Research proving that all brain regions are equally involved in every mental function
d) Observations indicating that personality traits are determined solely by spinal cord activity

1.15 What was the primary purpose of the split-brain operation?

a) To reduce chronic pain; it revealed the link between the nervous system and consciousness
b) To treat severe epilepsy; it highlighted the role of verbal behavior in conscious awareness
c) To improve sensory perception; it demonstrated the independence of the cerebral hemispheres
d) To enhance cognitive functions; it provided evidence for brain plasticity

1.16 Clinical neuropsychology is a prominent subdivision of neuropsychology. What makes it distinct from other subfields of biopsychology, such as psychopharmacology or comparative psychology?

a) Its focus on comparing animal behaviour to human and animal cognition in natural environments
b) Its primary focus on understanding drug interactions and neural behaviour
c) Its exploration of the cultural influences on perception and memory formation
d) Its application of brain-behaviour relationships treating cognitive impairments

1.17 Which motor cortex area is responsible for planning complex movements and coordinating two-handed movements?

a) Premotor cortex
b) Supplementary motor area
c) Posterior parietal cortex
d) Primary motor cortex

1.18 Which sleep disorder is characterized by excessive daytime sleepiness and sudden episodes of falling asleep?

a) Narcolepsy
b) Insomnia
c) Hypersomnia
d) Sleep paralysis

1.19 The neurotransmitter serotonin is implicated in several physiological and psychological functions. What could occur if serotonin levels are significantly reduced?

a) Enhanced energy levels and improved ability to focus
b) Impaired immune function and increased inflammatory responses
c) Heightened susceptibility to mood disorders such as depression
d) Disruption in circadian rhythms and thermoregulatory processes

1.20 Which type of muscle is primarily responsible for controlling movement in relation to the environment?

a) Smooth muscle
b) Cardiac muscle
c) Skeletal muscle
d) Intrafusal muscle

INDEX NO: .....

ANSWER SHEET FOR SECTION-1

Q. No.	(a)	(b)	(c)	(d)
1.1				
1.2				
1.3				
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SECTION 2: SHORT ANSWER QUESTIONS (60 MARKS)

All Questions are compulsory

2.1 Briefly describe the contributions of Franz Gall to the field of neuropsychology. (5 Marks)

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2.2 What are the two main subdivisions of neuropsychology? (5 Marks)

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2.3 What is unilateral neglect? (5 Marks)

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2.4 Describe the phenomenon of blindsight and its significance in understanding visual awareness and consciousness. (5 Marks)

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2.5 What methods are commonly employed by experimental neuropsychologists to study brain-behaviour relationships? (5 Marks)

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2.6 What is the main difference between the sympathetic and parasympathetic nervous systems? (5 Marks)

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2.7 Name two consequences of damage to the prefrontal cortex. (5 Marks)

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2.8 What is the difference between flexion and extension in skeletal muscle movement? (5 Marks)

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2.9 What is decerebrate rigidity, and what are its underlying neural mechanisms? (5 Marks)

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2.10 Name two (2) symptoms of Delayed Sleep Phase Disorder (DSPD). (5 Marks)

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2.11 Why is the ventromedial prefrontal cortex considered a "crossroad" in emotional processing? (5 Marks)

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2.12 Explain the role of dopamine in mental health. (5 Marks)

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----------END OF QUESTION PAPER----------