

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



BSC HONS IN PSYCHOLOGY
PLU4304 – BRAIN AND BEHAVIOUR - LEVEL 4
CONTINUOUS ASSESSMENT TEST – NBT I
DURATION: 1 ½ HOURS

DATE: 15th JANUARY 2025

TIME: 2.00 P.M. – 3.30 P.M.

INDEX NO:

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 cerebral cortex is a crucial part of the brain involved in numerous complex functions. Which of the following is the primary role of the cerebral cortex in human behaviour and cognition?
- a) Controlling involuntary reflexes that ensure survival
 - b) Facilitating higher-order cognitive processes
 - c) Maintaining physiological functions like blood pressure regulation
 - d) Overseeing digestive processes in the body
- 1.2 Different regions of the brain are specialized for processing various types of information. Which lobe of the brain is specifically responsible for interpreting visual stimuli and allowing individuals to perceive and make sense of what they see?
- a) The temporal lobe
 - b) The parietal lobe
 - c) The occipital lobe
 - d) The frontal lobe
- 1.3 Which method involves gathering information from many people using tools like questionnaires?
- a) Genetic Method
 - b) Survey Method
 - c) Clinical Method
 - d) Introspection Method
- 1.4 Which of the following statements about neurotransmitters is most accurate?
- a) Neurotransmitters travel through the bloodstream to distant organs
 - b) Neurotransmitters act within the synaptic cleft between two nerve cells
 - c) Neurotransmitters have the same function as hormones in the body
 - d) Neurotransmitters have a long-distance effect like that of hormones
- 1.5 How does norepinephrine contribute to stress responses?
- a) It regulates the sleep cycle, promoting relaxation
 - b) It helps in the regulation of blood sugar levels during stress
 - c) It decreases respiratory rate to promote calm breathing
 - d) It decreases heart rate and blood pressure

- 1.6 How does testosterone influence aggression in humans?
- a) It reduces aggression by lowering the perception of threat
 - b) It increases aggression by promoting dominance and competitive behaviour
 - c) It has no impact on aggression in humans
 - d) It only affects physical strength and psychological strength, not behaviour
- 1.7 What is the condition where a person cannot recognize faces but can recognize voices?
- a) Visual agnosia
 - b) Prosopagnosia
 - c) Tritanopia
 - d) Deuteranopia
- 1.8 What phenomenon occurs when sensory receptors reduce their response to a constant stimulus over time?
- a) Neuroplasticity
 - b) Sensory adaptation
 - c) Sensory overload
 - d) Hemispatial neglect
- 1.9 What is a primary mechanism by which neurotoxins damage the nervous system?
- a) They enhance neurotransmitter release
 - b) They completely stop the neurotransmitter reuptake
 - c) They alter ionic exchange capability of neuronal membranes
 - d) They increase the synthesis of neurotransmitters
- 1.10 Which neurotransmitters are typically involved in the effects of psychoactive drugs?
- a) Acetylcholine, Glutamate, and Estrogen
 - b) Dopamine, Noradrenaline, and Serotonin
 - c) Insulin, Progesterone and Cortisol
 - d) Estrogen and Progesterone
- 1.11 Which of the following best describes the relationship between hormones and human sexual behaviour?
- a) Hormones like testosterone and estrogen have no impact on sexual behavior
 - b) Androgens influence sexual behaviour, with testosterone playing a central role in males
 - c) Hormones regulate sexual behaviour by changing social and cultural norms
 - d) Hormones only influence sexual behaviour during puberty

- 1.12 Which hormone is associated with the regulation of the circadian rhythm (sleep-wake cycle)?
- a) Cortisol
 - b) Melatonin
 - c) Oxytocin
 - d) Testosterone
- 1.13 Which neurotransmitter is primarily involved in the process of memory formation and learning?
- a) Dopamine
 - b) Norepinephrine
 - c) Acetylcholine
 - d) GABA
- 1.14 Which of the following is a drawback of the introspection method?
- a) It eliminates subjective bias completely
 - b) It provides direct access to thoughts
 - c) It ensures consistent results across individuals
 - d) It is not suitable for children or animals
- 1.15 The knee-jerk reflex bypasses which of the following structures for faster responses?
- a) Hypothalamus
 - b) Amygdala
 - c) Spinal cord
 - d) Cerebral cortex
- 1.16 Which of the following correctly describes the hindbrain?
- a) It is composed of the amygdala, cerebellum, and medulla
 - b) It includes the medulla, pons, and cerebellum
 - c) It manages only voluntary functions
 - d) It excludes the spinal cord
- 1.17 Which of the following best explains how the cerebrum processes sensory and motor information?
- a) The left hemisphere processes sensory data from the right side and controls motor actions for the left side.
 - b) The left hemisphere processes and controls sensory and motor data from the same side of the body.
 - c) The left hemisphere processes information from the right side, and the right hemisphere does the same for the left side.
 - d) Both hemispheres operate independently, with no crossover in sensory or motor functions.

- 1.18 According to emotional intelligence theory, what ability is essential for emotional intelligence?
- a) Recognizing and regulating own emotions
 - b) High cognitive intelligence
 - c) Relying solely on logic for decision-making
 - d) Avoiding emotional responses
- 1.19 Which part of the brain is primarily responsible for controlling vital reflexes such as breathing and heart rate?
- a) Cerebrum
 - b) Medulla
 - c) Cerebellum
 - d) Hypothalamus
- 1.20 Which sensory system is primarily involved in detecting smells?
- a) Visual system
 - b) Olfactory system
 - c) Auditory system
 - d) Tactile system

INDEX NO:

ANSWER SHEET FOR SECTION-1

Q. No.	(a)	(b)	(c)	(d)
1.1				
1.2				
1.3				
1.4				
1.5				
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INDEX NO:

SECTION 2: SHORT ANSWER QUESTIONS (60 MARKS)

All Questions are compulsory

2.1 What is the primary difference between innate behaviors and learned behaviors? (5 Marks)

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2.2 What is Aristotle's perspective on the brain and behavior? (5 Marks)

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2.3 How does the blood-brain barrier benefit the brain? (5 Marks)

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2.4 Explain the significance of cerebrospinal fluid (CSF) in protecting the brain (5 Marks)

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2.5 What is the main difference between CT and MRI scans? (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 What does the term 'naturalistic observation' refer to in research? (5 Marks)

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2.8 What happens when there is a deficiency in dopamine? (5 Marks)

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2.9 What is the relationship between cortisol and sleep patterns? (5 Marks)

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2.10 What is the key distinction between anxiolytics and sedatives in terms of their primary purpose and effects? (5 Marks)

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2.11 Provide examples of naturally occurring neurotoxic substances. (5 Marks)

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2.12 What is a limitation of using observational methods in behaviour research? (5 Marks)

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

