



AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY

END OF TRIMESTER EXAMINATIONS JANUARY TO APRIL 2025

UNIT CODE: PHT 211

UNIT NAME: Human Physiology Nervous system & Special senses (Main exam)

DATE: 9th APRIL 2025

TIME: 2pm-4pm

INSTRUCTIONS

- 1. All students will have two (2) hours to complete the examination**
- 2. Attempt all questions as per the instruction**
- 3. It is the student's responsibility to report any page and number missing in this paper.**
- 4. Check that the paper is complete**
- 5. Total number of pages is 5 including the cover.**
- 6. Read through the paper quickly before you start.**

Section A. Multiple choice questions. Attempt all the questions (30 Marks)

1. Which of the following is NOT a function of the nervous system?
 - a) Regulation of body temperature
 - b) Transmission of nerve impulses
 - c) Digestion of food
 - d) Coordination of voluntary and involuntary actions.
2. What are the two main divisions of the nervous system?
 - a) Central and Peripheral
 - b) Sympathetic and Parasympathetic
 - c) Sensory and Motor
 - d) Somatic and Autonomic
3. What is the functional unit of a synapse?
 - a) Axon
 - b) Dendrite
 - c) Neurotransmitter
 - d) Synaptic cleft
4. Which neurotransmitter is mainly involved in excitatory synaptic transmission?
 - a) GABA
 - b) Dopamine
 - c) Glutamate
 - d) Serotonin
5. What is the main inhibitory neurotransmitter in the central nervous system?
 - a) Acetylcholine
 - b) Dopamine
 - c) GABA
 - d) Glutamate
6. Which sensory receptor detects pain?
 - a) Mechanoreceptors
 - b) Nociceptors
 - c) Thermoreceptors
 - d) Photoreceptors
7. Which tract carries pain and temperature sensations?
 - a) Corticospinal tract
 - b) Spinothalamic tract
 - c) Vestibulospinal tract
 - d) Reticulospinal tract
8. Which part of the brain processes somatic sensations?
 - a) Cerebellum
 - b) Sensory cortex
 - c) Motor cortex
 - d) Hypothalamus

9. What is the main function of the Pain Gate Control Theory?
- To amplify pain signals
 - To block pain signals before they reach the brain
 - To increase pain perception
 - To allow all pain signals to pass to the brain
10. Which of the following fibers are responsible for transmitting sharp pain?
- A-beta fibers
 - C fibers
 - A-delta fibers
 - B fibers
11. Which part of the brain controls voluntary motor activity?
- Cerebellum
 - Motor cortex
 - Sensory cortex
 - Thalamus
12. Which reflex involves only one synapse?
- Polysynaptic reflex
 - Withdrawal reflex
 - Stretch reflex
 - Crossed-extensor reflex
13. Which law states that dorsal roots carry sensory information while ventral roots carry motor information?
- Bell-Magendie law
 - Weber's law
 - Dalton's law
 - Monroe-Kellie doctrine
14. Which function is associated with the cerebellum?
- Control of balance and coordination
 - Regulation of emotions
 - Control of heart rate
 - Processing auditory signals
15. Which structure acts as the relay center for sensory information?
- Hypothalamus
 - Cerebellum
 - Thalamus
 - Basal ganglia
16. Which lobe of the brain is responsible for processing visual information?
- Frontal
 - Parietal
 - Temporal
 - Occipital
17. Which Brodmann area is responsible for speech production?
- 1
 - 4

- c) 17
d) 44
18. Which sleep stage is associated with dreaming?
a) Stage 1
b) Stage 2
c) REM sleep
d) NREM sleep
19. Where is cerebrospinal fluid (CSF) produced?
a) Pineal gland
b) Choroid plexus
c) Hypothalamus
d) Thalamus
20. What is hydrocephalus?
a) A condition caused by excessive CSF
b) A lack of CSF production
c) A type of brain tumor
d) A disorder affecting the spinal cord
21. Which system is responsible for the "fight or flight" response?
a) Somatic nervous system
b) Parasympathetic nervous system
c) Sympathetic nervous system
d) Central nervous system
22. Which neurotransmitter is primarily associated with the parasympathetic nervous system?
a) Dopamine
b) Acetylcholine
c) Norepinephrine
d) Glutamate
23. Which photoreceptor is responsible for color vision?
a) Rods
b) Cones
c) Ganglion cells
d) Bipolar cells
24. What is the main function of the cochlea?
a) Maintain balance
b) Detect sound waves
c) Control eye movement
d) Regulate emotions
25. Which test is used to assess hearing loss?
a) ECG
b) Spirometry
c) Audiometry
d) EEG
26. Which sensory tract carries fine touch and proprioception sensations?

- a) Spinothalamic tract
- b) Corticospinal tract
- c) Dorsal column-medial lemniscus pathway
- d) Vestibulospinal tract

27. Which cranial nerve is involved in the trigeminal sensory pathway?

- a) CN V
- b) CN VII
- c) CN IX
- d) CN X

28. What is stereognosis?

- a) The ability to detect temperature changes
- b) The ability to recognize objects by touch alone
- c) The ability to perceive pain intensity
- d) The ability to detect sound waves

29. Which neurotransmitter is involved in pain transmission?

- a) Dopamine
- b) Serotonin
- c) Substance P
- d) GABA

30. Where does pain modulation occur in the nervous system?

- a) Cerebellum
- b) Spinal cord
- c) Medulla oblongata
- d) Basal ganglia

Section B- Short answer question (20 Marks)

1. Explain the synapse Based on:
 - a) Classification of synapses based on their function and the location of interaction. (8 marks)
 - b) Function of the synapse. (2 marks)
2. A) Name the motor pathways. (2marks)
 - c) Their functions of the motor pathways (4 marks)
3. List down the function of the nervous system. (4 marks)

Section C Long Structured question. Choose either question 1 or 2 (20 Marks)

4. Discuss the sensory pathways of the nervous system, including their classification and functions. (20 marks)
5. Explain the physiology of vision, including photopic and scotopic vision, and the visual pathway. (20 mark)