

Learning System



MODULE 2 | ANATOMY AND PHYSIOLOGY

TABLE OF CONTENTS

INTRODUCTION TO ANATOMY AND PHYSIOLOGY	3
PRE-ASSESSMENT	4
PRE-ASSESSMENT – ANSWER KEY	5
SECTION 1 THE NERVOUS SYSTEM	6
INTRODUCTION TO THE NERVOUS SYSTEM	7
THE CENTRAL NERVOUS SYSTEM (CNS).....	10
THE CENTRAL CORE.....	11
THE LIMBIC SYSTEM	12
THE CEREBRUM.....	13
THE SPINAL CORD	14
THE PERIPHERAL NERVOUS SYSTEM.....	15
NERVES OF THE PNS.....	16
MOTOR NEURONS	19
SUMMARY.....	20
ACTIVITY	22
ACTIVITY – ANSWERS.....	23
SECTION 2 MUSCLE PHYSIOLOGY.....	24
TYPES OF MUSCLE	25
SKELETAL MUSCLE.....	26
MUSCLE CONTRACTION AND MOVEMENT.....	28
NERVE IMPULSE TRANSDUCTION	33
THE SNARE FUNCTION	36
INHIBITION OF SNARE FUNCTION.....	37
SUMMARY.....	38
ACTIVITY	39
ACTIVITY - ANSWERS.....	40

PRE-ASSESSMENT



Welcome to the Pre-Test for Module 2: Anatomy and Physiology.

This Pre-Test is designed to familiarize you with the concepts that will be covered and the terminology that will be used in this Module.

It will also help you identify what you already know about the topics in the Module prior to completing it. It should take you up to five minutes to answer these questions.

When you have completed the questions, compare your answers with the Pre-Test Answer Key that follows. At this point, do not be concerned about answering all of the questions correctly. You will learn about the answers as you complete this Module.

Please circle the correct response. Note that some questions contain more than one correct answer as indicated.

1. The central nervous system consists of (Choose all that apply)
 - a) the brain
 - b) spinal nerves
 - c) the spinal cord
 - d) all of the neurons connected with muscles, skin, and sense organs
2. Which part of the brain has five main regions that help regulate basic functions?
 - a) central core
 - b) limbic system
 - c) cerebrum
 - d) medulla
3. The compression of which cranial nerve causes hemifacial spasm?
 - a) olfactory
 - b) trigeminal
 - c) optic
 - d) facial
4. What is the primary neurotransmitter found in the parasympathetic nervous system?
 - a) adrenaline
 - b) acetylcholine
 - c) dopamine
 - d) norepinephrine
5. Which proteins are part of the SNARE complex? (Choose all that apply.)
 - a) VAMP
 - b) SNAP-25
 - c) myofibril
 - d) syntaxin

INTRODUCTION TO THE NERVOUS SYSTEM (continued)

Neurons

The key cell type of the nervous system is the neuron. A neuron is an electrically excitable cell that processes and transmits information. A neuron is composed of a cell body that has numerous extensions called dendrites, which act as receivers for chemical messages from other neurons (see figure below).

A particular extension called the axon, which is distinct from dendrites, transmits signals to other neurons or effector cells. A thin insulating layer of cells known as the myelin sheath covers the axon and is interrupted at regular intervals by nodes called the Node of Ranvier. The myelin sheath and nodes are crucial for the conduction of nerve impulses along the axon.

Did You Know...?

Disorders that alter the myelin cover (e.g., multiple sclerosis) interfere with impulse propagation, causing various neurologic symptoms.

A Neuron

