

Student name: _____

Physiology _____.

emphasizes cause-and-effect mechanisms

includes the fields of chemistry and psychology

ignores the scientific method

ultimately strives to understand the structures of individual cells

The study of how disease or injury alters physiological processes is termed _____.

comparative physiology

the scientific method

pathophysiology

anatomy

The study of disease processes aids in the understanding of normal functions.

true

false

The first step in the scientific method involves the formation of a(n) _____.

theory

law

experiment

hypothesis

Phase IV clinical drug trials involve testing a drug only on the specific human population who have the condition that the drug is intended to treat.

true

false

Phase_____ clinical trials maximize the number of test participants and include human participants of both sexes, different ethnic groups, and those who have health problems besides the one that the drug is designed to treat.

I

II

III

IV

Phase I clinical trials do NOT involve testing_____.

on the target human population

how the drug is metabolized

how rapidly the drug is removed from the body

the most effective administration of the drug

When a scientist performs measurements in an experiment and does not know if the subject is part of the experimental or the control group, it is known as a _____ measurement.

blind

qualitative

null

statistical

A hypothesis is scientific if it_____.

supports other hypotheses

can be tested

refutes other hypotheses

uses observational analyses

For a theory to be scientific and accepted, it must be based on_____.

reproducible data

the support of the scientific community

a proven hypothesis from a well designed research study

the word of a professional scientist

Negative feedback results in a response that opposes the original deviation from normal.

true

false

Blood clotting is an example of positive feedback since the action of the effector opposes that of the stimulus.

true

false

A patient takes a daily thyroid hormone replacement medication to maintain normal thyroid hormone levels.

true

false

The normal range of blood glucose concentration after fasting is approximately_____.

50 to 80 mg/100 ml

50 to 110 mg/100 ml

70 to 99 mg/100 ml

75 to 150 mg/100 ml

The normal range of arterial blood pH is _____.

6.50–7.50

7.35–7.45

6.95–7.05

7.15–7.25

In a feedback loop, the integrating center sends information to the _____.

sensor

effector

brain region

thermostat

Both _____ and _____ are the regulators of effectors in most feedback loops.

enzymes; nerve impulses

hormones; paracrines

neurotransmitters; enzymes

hormones; nerve impulses

enzymes; hormones

Homeostatic regulatory mechanisms known as _____ are "built-in" to the organs being regulated.

intrinsic

extrinsic

exothermic

passive

The endocrine and nervous systems are considered _____ homeostatic regulatory mechanisms.

intrinsic

active

extrinsic

passive

When blood glucose levels rise, the pancreatic islets are stimulated to release insulin, which acts on target cells to uptake glucose from the blood. Thus, the islets serve as the _____ in the feedback loop.

effectors

integrating center

sensors

All of the choices are correct.

A decrease in mean arterial pressure is detected by a(n) _____.

effector

integrating center

sensor

chemical messenger

When a vessel is damaged, chemicals are released from the vessel walls that attract platelets to the site of the damage. As they accumulate, more chemicals that attract more platelets to the area until the bleeding stops. This represents _____ feedback, with the platelets acting as the _____.

negative; sensors

positive; integrating center

negative; integrating center

positive; effectors

Dynamic constancy is a term used to describe homeostasis. Select the scenario that is NOT example of dynamic constancy?

Sweating or shivering as you move from inside air-conditioned stores to outside on a hot, humid day.

Administering IV fluids to a person who presents to the emergency room with dehydration.

The pancreas releasing insulin when blood glucose levels are significantly elevated.

Adjusting the depth and rate of breathing as blood pH levels change.

Estrogen levels cause both increased and decreased hormone secretions from the anterior pituitary and hypothalamus at various points in the menstrual cycle. This indicates that estrogen is _____.

secreted in consistent amounts from the ovaries throughout the menstrual cycle

NOT involved in any feedback loops

involved in both positive and negative feedback with the anterior pituitary and hypothalamus

the hormones the ovaries use to serve as the integrating center in a feedback loop with the anterior pituitary and hypothalamus

The control of hormone secretion by its own effects is called_____.

positive feedback

negative feedback

negative feedback inhibition

antagonist effector

The primary stimulus for insulin secretion is increased_____.

blood glucose concentration

blood calcium concentration

body temperature

exposure to sunlight

If the blood glucose level decreases from normal, which effects will bring glucose levels back to normal?

Increase in insulin; increase in glucagon

Increase in insulin; decrease in glucagon

Decrease in insulin; increase in glucagon

Decrease in insulin; decrease in glucagon

Select the basic tissue type that is NOT a primary tissue of the body.

Nervous

Epithelial

Muscular

Osseous

Contraction of _____ muscle can be consciously controlled.

cardiac

smooth

skeletal

striated

Intercalated discs couple _____ cells both mechanically and electrically.

smooth muscle

myocardial

skeletal muscle

both myocardial and skeletal muscle

You examine a sample of muscle tissue under the microscope, and it has a striped, or striated appearance. This sample could not have been taken from the _____.

muscle of the thigh

wall of digestive tract

wall of heart chamber

muscle of the forearm

Smooth muscle contains _____.

fibers that are striated in appearance

tendons

intercalated discs that connect adjacent cells

several layers in the walls of the digestive tract

Neuroglia are supporting cells present in the _____.

brain

spinal cord

effector organs

Both brain and spinal cord are correct.

Damage to the _____ of a neuron would interfere with its ability to receive sensory input from its surrounding environment.

dendrites

axons

cell body

telodendria

The primary function of neurons is to _____.

bind nervous tissue together

help nourish nervous tissue

conduct electrical impulses

modify the extracellular environment

Stratified epithelial tissue provides little protection, but transports substances between the internal and external environments.

true

false

The peritoneal membrane of the abdominal cavity secretes fluid to reduce friction between adjacent organs in the body. The tissue best suited to this description and function is _____.

stratified squamous

elastic connective tissue

simple columnar

simple squamous

Cells that are as wide as they are tall have a _____ shape.

squamous

cuboidal

columnar

rectangular

The _____ is a protein and polysaccharide layer that attaches epithelial tissue to the underlying connective tissue.

goblet cell

epidermis

basement membrane

plasma membrane

Which types of connections allow epithelial cells to form strong membranes?

Basement membranes

Intercalated discs

Junctional complexes

Keratinized

Keratinized epithelium_____.

has living cells in all layers

is a moist membrane

allows water to diffuse through

is a dry, mostly dead membrane

Epithelial tissues that are more than one layer thick are called_____.

simple

stratified

squamous

ciliated

Histological examination of a tissue shows several layers of keratinized flattened cells. This sample most likely came from the_____.

epidermis of the skin

lining of the oral cavity

lining of the urinary bladder

lining of the digestive tract

Which type of epithelial tissue would be found lining the uterine tubes?

Simple ciliated columnar epithelium

Stratified cuboidal epithelium

Nonkeratinized stratified squamous epithelium

Simple cuboidal epithelium

Specialized unicellular glands found in columnar and pseudostratified columnar epithelium that secrete mucus are called_____.

cilia

keratin

transitional cells

goblet cells

A single layer of irregularly shaped epithelial cells found lining the respiratory tract is called_____.

simple columnar epithelium

stratified cuboidal epithelium

pseudostratified ciliated columnar epithelium

transitional epithelium

The epithelial tissue that lines the urinary bladder and allows distention is called_____.

transitional epithelium

stratified cuboidal epithelium

simple columnar epithelium

nonkeratinized stratified squamous epithelium

The entire epidermis is replaced every_____.

2–3 days

2 weeks

2–3 hours

2 months

One unique function of simple squamous epithelium is to allow_____.

protection

diffusion

distention

transport through ciliary action

Sebaceous glands are responsible for the lubrication of the skin.

true

false

Select the best example of endocrine secretion.

Mucous gland that secretes onto respiratory passages.

Sweat gland that secretes onto the skin.

Salivary gland that secretes into the mouth.

Testes cells that secrete testosterone into the blood.

Which glands are primarily responsible for thermoregulation?

Apocrine sweat glands

Endocrine glands

Eccrine sweat glands

Sebaceous glands

Enamel, which is harder than bone or dentin, cannot be regenerated.

true

false

Which tissue attaches skeletal muscles to bones?

Ligaments

Cartilages

Tendons

Adipocytes

The main distinguishing characteristic of connective tissue is a(n)_____.

large amount of closely packed cells

large amount of extracellular material

ability to conduct an electrical current

small amount of extracellular material

Tendons are composed of_____.

adipose tissue

dense regular fibrous connective tissue

dense irregular fibrous connective tissue

loose connective tissue

What protein is present in large amounts in connective tissue proper?

Collagen

Keratin

Enamel

Mucin

Which type of connective tissue is characterized by a liquid extracellular matrix?

Bone

Blood

Adipose

Irregular dense connective tissue

The cells that secrete fibers and matrix that create bone tissue are known as_____.

osteocytes

osteoblasts

osteons

chondrocytes

Cartilage cells are known as_____.

osteocytes

osteoblasts

chondroblasts

chondrocytes

Units of bone composed of concentric rings of lamellae with trapped osteocytes are called_____.

canaliculi

osteons

haversian systems

Both osteons and haversian systems are correct.

By affecting the diameter of cutaneous blood vessels, motor nerve fibers in the skin can regulate the rate of blood flow.

true

false

Select the function of the skin that the epidermis does NOT provide.

Acts as barrier against microorganisms

Prevents water loss

Protects against abrasion

Provides strength and elasticity

Skin protects a person from the ultraviolet rays of the sun by producing_____.

sweat

vitamin D

sebum

melanin

What produces "goose bumps"?

Secretion of sweat

Contraction of the arrector pili muscle

Flow of sebum onto the skin

Dilation of cutaneous blood vessels

The_____ layer of the skin contains sweat glands, hair follicles, and sebaceous glands.

epidermal

dermal

hypodermal

subdermal

The hypodermis is primarily composed of_____.

adipose tissue

nervous tissue

blood vessels

hair cells

The zygote (fertilized egg) has the ability to produce all the various types of cells found in the body. Therefore, it is a(n)_____ cell.

pluripotent

multipotent

totipotent

omnipotent

Adult stem cells may be found in_____.

hair follicles

the brain

red bone marrow

skeletal muscle

All of the choices are correct.

Blood plasma and interstitial fluid are separated from each other; therefore, there is little communication and exchange between these fluids.

true

false

The intracellular fluid compartment_____.

is made up of blood plasma and interstitial fluid

is regulated by the kidneys

makes up 65% of the total body water

communicates with the cerebrospinal fluid

The main cell type of connective tissue proper is the_____.

fibroblast

monocyte

keratinocyte

chondrocyte

Answer Key

Test name: CH1 Human Physiology E16

A

C

TRUE

D

FALSE

C

A

A

B

A

TRUE

FALSE

FALSE

C

B

B

D

A

C

D

C

B

B

C

C

A

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A

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FALSE

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TRUE

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TRUE

D

D

B

B

A

C

E

FALSE

C

A