

- ___ 25. Growth hormone is produced in the following region:
- anterior pituitary gland
 - posterior pituitary gland
 - thyroid gland
 - thymus gland
- ___ 26. The following causes blood sugar to rise
- insulin
 - glucagon
 - epinephrine
 - norepinephrine
- ___ 27. The following are **NOT** characteristics of type I diabetes
- thought to be an autoimmune disease
 - insulin dependent
 - develops gradually after age forty
 - factors such as diet, physical activity and health effect the level of insulin
- ___ 28. This gland helps produce lymphocytes:
- thyroid gland
 - thymus gland
 - pancreas
 - pineal gland
- ___ 29. The following gland secretes melatonin and is located deep between the cerebral hemispheres
- pituitary gland
 - pancreas
 - thyroid gland
 - pineal gland
- ___ 30. The following hormone will stimulate glucose production and inhibit protein synthesis
- insulin
 - cortisol
 - aldosterone
 - epinephrine

- ___ 31. Calcitonin is secreted by the
- pituitary gland
 - thyroid gland
 - pineal gland
 - parathyroid gland
- ___ 32. The Islets of Langerhans are located in the
- kidneys
 - stomach
 - pancreas
 - thyroid gland
- ___ 33. The following is *NOT* a function of prostaglandins:
- helps with blood clotting
 - influences movement of water through kidneys
 - powerful effects on male and female reproductive physiology
 - all of the above are functions of prostaglandins
- ___ 34. Hormone secretion is typically kept in balance through a...
- Positive feedback loop
 - Negative feedback loop
 - Starling's equilibrium
 - Wolff's law
- ___ 35. Which hormone has a powerful anti-inflammatory action but is damaging to connective tissue?
- Adrenaline
 - Thyroid hormone
 - Thyroid-stimulating hormone
 - Cortisol
- ___ 36. Diabetes mellitus refers to any problem in which...
- Blood glucose is too low, leading to frequent hypoglycemic episodes
 - Blood glucose is normal, but cells refuse to accept it
 - Blood glucose is normal, but the kidneys stop extracting glucose in urine
 - Blood glucose is too high, leading to the excreting of glucose in the urine

- ___ 37. Type 1 diabetes is...
- a. A multifactorial situation in which blood glucose accumulates to dangerous levels
 - b. A wear-and-tear situation in which the pancreas no longer produces adequate glucagons
 - c. An autoimmune attack on the insulin-producing cells of the pancreas
 - d. An autoimmune attack on the glucagons-producing cells of the pancreas
- ___ 38. Which is the longest muscle in the body?
- a. Iliopsoas
 - b. Biceps Brachii
 - c. Sartorius
 - d. Pectoralis Muscle

True and False questions:

- ___ 39. Lactic acid build up will result in an increased pH of the cell.
- ___ 40. A muscle fiber can contract partially based on the strength of the stimulus.
- ___ 41. In an isometric contraction the muscle will contract with no movement
- ___ 42. Active muscles release a great amount of heat
- ___ 43. Synergists are muscles which contract to assist the prime mover
- ___ 44. Insertions are located on the immovable and proximal end of a bone.
- ___ 45. Dark meat in chicken contains primarily slow oxidative fibers.
- ___ 46. Muscles can both push and pull to move a body part.
- ___ 47. Fascia may extend beyond the muscle to form a tendon.
- ___ 48. Troponin and tropomyosin are parts of the actin filament.
- ___ 49. Hormones only affect target cells.
- ___ 50. Control of hormones is always by a positive feedback system.
- ___ 51. The posterior portion of the pituitary gland produces hormones.
- ___ 52. Type II diabetes produces milder symptoms than type I diabetes.
- ___ 53. Glucagon and insulin will have opposite effects on blood sugar levels.

Matching-Origins and Insertions:

- a. Cervical and thoracic vertebrae
- b. Greater tubercle of humerus
- c. Lesser tubercle of humerus
- d. Radial tuberosity

___ 54. Insertion of the subscapularis muscle

___ 55. Insertion of infraspinatus

___ 56. Origin of trapezius

___ 57. Insertion of Biceps Brachii

Name: _____

Date: _____

Science Olympics Anatomy Test

___ 1. The following is *NOT* a function of muscles

- a. produces movement
- b. supports soft tissue
- c. detects sensation
- d. maintains body temperature

___ 2. The correct order of the three layers of connective tissue from superficial to deep

- a. epimysium, perimysium, endomysium
- b. perimysium, endomysium, epimysium
- c. endomysium, perimysium, epimysium
- d. perimysium, epimysium, endomysium

___ 3. Contractile elements of muscle fiber

- a. acetylcholine
- b. aponeuroses
- c. myofibrils
- d. sarcolemma

___ 4. A protein that binds oxygen in muscle tissue

- a. hemoglobin
- b. myoglobin
- c. sarcoglobin
- d. sarcomere

___ 5. What ion plays a vital role in muscle contraction?

- a. Calcium
- b. Sodium
- c. Potassium
- d. Chloride

___ 6. The following is the thick filament involved in muscle contraction.

- a. actin
- b. troponin
- c. tropomyosin
- d. myosin

- ___ 7. Muscle fibers that contract fast and strong and will fatigue quickly
- fast oxidative fibers
 - slow oxidative fibers
 - smooth fibers
 - red fibers
- ___ 8. The following is *NOT* a reason for muscle fatigue
- cramps
 - decreased oxygen
 - decrease carbon dioxide
 - lactic acid
- ___ 9. Lactic acid fermentation will provide energy for about
- indefinitely
 - 10 seconds
 - 20 minutes
 - 90 seconds
- ___ 10. A network of channels that surrounds each myofibril, releases calcium ions
- transverse tubules
 - sarcoplasmic reticulum
 - sarcolemma
 - sarcoplasm
- ___ 11. A motor unit consists of
- a neuromuscular junction
 - transverse tubules and associated sarcomeres
 - all of the filaments of the sarcomere
 - a motor neuron and the muscle fibers it controls
- ___ 12. Chemical reactions in cells that use oxygen and gives off carbon dioxide
- pulmonary ventilation
 - internal respiration
 - cellular respiration
 - external respiration

- ___ 13. Carpal Tunnel Syndrome is the impingement of what nerve?
- Radial
 - Median
 - Ulnar
 - Musculocutaneous
- ___ 14. In many cases what muscle contributes to Carpal Tunnel symptoms?
- Prontoor quadrates
 - Pronator terres
 - Supinator
 - Biceps bracchii
- ___ 15. The following is *NOT* a part of the lower respiratory system
- pharynx
 - larynx
 - trachea
 - bronchi
- ___ 16. The following is *NOT* considered a part of the respiratory portion of the respiratory system
- alveoli
 - terminal bronchioles
 - alveolar ducts
 - alveolar sacs
- ___ 17. When you *EXHALE*, air flows through respiratory structures in which sequence?
- bronchus, bronchiole, alveolus, larynx, trachea, pharynx, nasal cavity
 - bronchiole, alveolus, bronchus, larynx, trachea, pharynx, nasal cavity
 - pharynx, trachea, alveolus, bronchus, larynx, nasal cavity
 - alveolus, bronchiole, bronchus, larynx, trachea, pharynx, nasal cavity
- ___ 18. Lung collapse is prevented by
- high surface tension of alveolar fluid
 - adhesion of the pleural membranes
 - high pressure in the pleural cavities
 - high elasticity of lung tissue

- ___ 19. During inspiration, intrapulmonary pressure is:
- greater than atmospheric pressure
 - less than atmospheric pressure
 - greater than intrapleural pressure
 - less than intrapleural pressure
- ___ 20. In which structures would you find simple squamous epithelium
- secondary bronchi
 - larynx and pharynx
 - tertiary bronchi
 - alveoli
- ___ 21. Johnny is having an asthma attack and feels as if he can not breathe. Why?
- his diaphragm is not contracting
 - spasms in the bronchiole smooth muscle have blocked airflow to the alveoli
 - excess mucus production is interfering with airflow in the lungs
 - epiglottis has closed and air is not entering the lungs
- ___ 22. Emphysema is a situation in which...
- The alveoli of the lungs fill with pus and fluid, making gaseous exchange impossible
 - The bronchi of the lungs are chronically dilated and lined with sticky mucus
 - The capillaries in the lungs become excessively permeable, allowing too much oxygen to enter the system
 - Chronic irritation in the respiratory tract causes the alveolar walls to fuse, reducing surface area in the lungs
- ___ 23. The following type of hormone involves a second messenger called cyclic AMP
- lipid hormones
 - non-lipid hormones
 - prostaglandins
 - cholesterol
- ___ 24. The following gland is referred to as the master gland of the endocrine system:
- adrenal glands
 - pancreas
 - pituitary gland
 - thyroid gland