Question 1 (5 points)

Which component of the cell produces hydrogen peroxide (H_2O_2) by using oxygen to remove hydrogen atoms from specific substrates in an oxidative reaction?

Question 1 options:

- Lysosomes
- Peroxisomes
- Ribosomes
- Oxyhydrosomes

Question 2 (5 points)

What is a consequence of plasma membrane damage to the mitochondria?

Question 2 options:

- Enzymatic digestion halts deoxyribonucleic acid (DNA) synthesis.
- Influx of calcium ions halts adenosine triphosphate (ATP) production.
- Edema from an influx in sodium causes a reduction in ATP production.
- Potassium shifts out of the mitochondria, which destroys the infrastructure.

Question 3 (5 points)

Which statement is a description of one of the characteristics of apoptosis?

Question 3 options:

- Apoptosis involves programmed cell death of scattered single cells.
- Apoptosis is characterized by the swelling of the nucleus and the cytoplasm.
- Apoptosis involves unpredictable patterns of cell death.

- Apoptosis results in benign malignancies.

Question 4 (5 points)

During cell injury caused by hypoxia, sodium and water move into the cell because:

Question 4 options:

- During cell injury caused by hypoxia, sodium and water move into the cell because:
- The pump that transports sodium out of the cell cannot function because of a decrease in adenosine triphosphate (ATP) levels.
- The osmotic pressure is increased, which pulls additional sodium across the cell membrane
- Oxygen is not available to bind with sodium to maintain it outside of the cell.

Question 5 (5 points)

What is an effect of ionizing radiation exposure?

Question 5 options:

- Respiratory distress
- Sun intolerance
- Deoxyribonucleic acid (DNA) aberrations
- Death

Question 6 (5 points)

Obesity creates a greater risk for dehydration in people because:

Question 6 options: chapter 3 q.2

- ?Adipose cells contain little water because fat is water repelling.
- The metabolic rates of obese adults are slower than those of lean adults.

- The rates of urine output of obese adults are higher than those of lean adults.
- The thirst receptors of the hypothalamus do not function effectively.

Question 7 (5 points)

In addition to osmosis, what force is involved in the movement of water between the plasma and interstitial fluid spaces?

Question 7 options:

- a) Oncotic pressure
- b) Buffering
- c) Net filtration
- d) Hydrostatic pressure

Question 8 (5 points)

Venous obstruction is a cause of edema because of an increase in which pressure?

Question 8 options:

- a) Capillary hydrostatic
- b) Interstitial hydrostatic
- c) Capillary oncotic
- d) Interstitial oncotic

Question 9 (5 points)

At the arterial end of capillaries, fluid moves from the intravascular space into the interstitial space because:

Question 9 options:

a) The interstitial hydrostatic pressure is higher than the capillary hydrostatic pressure.

b) The capillary hydrostatic pressure is higher than the capillary oncotic pressure.

c) The interstitial oncotic pressure is higher than the interstitial hydrostatic pressure.

d) The capillary oncotic pressure is lower than the interstitial hydrostatic pressure.

Question 10 (5 points)

It is true that natriuretic peptides:

Question 10 options:

a) Decrease blood pressure and increase sodium and water excretion.

b) Increase blood pressure and decrease sodium and water excretion.

c) Increase the heart rate and decrease potassium excretion.

d) Decrease the heart rate and increase potassium excretion.

Question 11 (5 points)

What causes the clinical manifestations of confusion, convulsions, cerebral hemorrhage, and coma in hypernatremia?

Question 11 options:

a) High sodium in the blood vessels pulls water out of the brain cells into the blood vessels, causing brain cells to shrink.

b) High sodium in the brain cells pulls water out of the blood vessels into the brain cells, causing them to swell.

c) High sodium in the blood vessels pulls potassium out of the brain cells, which slows the synapses in the brain.

d) High sodium in the blood vessels draws chloride into the brain cells followed by water, causing the

brain cells to swell.

Question 12 (5 points)

A major determinant of the resting membrane potential necessary for the transmission of nerve impulses is the ratio between:

Question 12 options:

a) Intracellular and extracellular Na+

b) . Intracellular and extracellular K+

c) Intracellular Na+ and extracellular K+

d) Intracellular K+ and extracellular Na+

Question 13 (5 points)

In hyperkalemia, what change occurs to the cells' resting membrane potential?

Question 13 options:

a) Hypopolarization

b) Hyperexcitability

c) Depolarization

d) Repolarization

Question 14 (5 points)

Physiologic pH is maintained at approximately 7.4 because bicarbonate (HCO_3) and carbonic acid (H_2CO_3) exist in a ratio of:

Question 14 options:

a) 20:1

b) 1:20

c) 10:2

d) 10:5

Question 15 (5 points)

Increased capillary hydrostatic pressure results in edema because of:

Question 15 options:

a) Losses or diminished production of plasma albumin

b) Inflammation resulting from an immune response

c) Blockage within the lymphatic channel system

d) Sodium and water retention

Question 16 (5 points)

Hypomethylation and the resulting effect on oncogenes result in:

Question 16 options:

a) A decrease in the activity of the oncogene, thus suppressing cancer development

b) Deactivation of MLH1 to halt deoxyribonucleic acid (DNA) repair

c) An increase in tumor progression from benign to malignant

d) Overexpression of micro-ribonucleic acid (miRNA), resulting in tumorigenesis

Question 17 (5 points)

The functions of the major histocompatibility complex (MHC) and CD1 molecules are alike because both:

Question 17 options:

a) Are antigen-presenting molecules

b) Bind antigens to antibodies

c) Secrete interleukins (ILs) during the immune process

d) Are capable of activating cytotoxic T lymphocytes

Question 18 (5 points)

The B-cell receptor (BCR) complex functions uniquely by:

Question 18 options:

a) Communicating information about the antigen to the helper T (Th) cell

b) Secreting chemical signals to help cells communicate

c) Recognizing the antigen on the surface of the B lymphocyte

d) Communicating information about the antigen to the cell nucleus

Question 19 (5 points)

The generation of clonal diversity includes a process that:

Question 19 options:

a) Involves antigens that select lymphocytes with compatible receptors

b) Allows the differentiation of cells into antibody-secreting plasma cells or mature T cells

c) Takes place in the primary (central) lymphoid organs

d) Causes antigens to expand and diversify their populations

Save

Question 20 (5 points)

Vaccinations are able to provide protection against certain microorganisms because of the:

Question 20 options:

a) Strong response from immunoglobulin M (IgM)

b) Level of protection provided by immunoglobulin G (IgG)

c) Memory cells for immunoglobulin E (IgE)

d) Rapid response from immunoglobulin A (IgA)

Question 21 (5 points)

What is the mechanism that results in type II hypersensitivity reactions?

Question 21 options:

a) Antibodies coat mast cells by binding to receptors that signal its degranulation, followed by a discharge of preformed mediators.

b) Antibodies bind to soluble antigens that were released into body fluids, and the immune complexes are then deposited in the tissues.

c) Cytotoxic T (Tc) lymphocytes or lymphokine-producing helper T 1 (Th1) cells directly attack and destroy cellular targets.

d) Antibodies bind to the antigens on the cell surface.

Question 22 (5 points)

When soluble antigens from infectious agents enter circulation, tissue damage is a result of:

Question 22 options:

a) Complement-mediated cell lysis

b) Phagocytosis by macrophages

c) Phagocytosis in the spleen

d) Neutrophil granules and toxic oxygen products

Save

Question 23 (5 points)

? Considering the hypothalamus, a fever is produced by:

Question 23 options:

a) Endogenous pyrogens acting directly on the hypothalamus

b) Exogenous pyrogens acting directly on the hypothalamus

c) Immune complexes acting indirectly on the hypothalamus

d) Cytokines acting indirectly on the hypothalamus

Question 24 (5 points)

Vaccines against viruses are created from:

Question 24 options:

a) Killed organisms or extracts of antigens

b) Live organisms weakened to produce antigens

c) Purified toxins that have been chemically detoxified

d) Recombinant pathogenic protein

Question 25 (5 points)

Carcinoma in situ is characterized by which changes?

Question 25 options:

a) Cells have broken through the local basement membrane.

b) Cells have invaded immediate surrounding tissue.

c) Cells remain localized in the glandular or squamous cells

d) Cellular and tissue alterations indicate dysplasia.

Question 26 (5 points)

Two "hits" are required to inactivate tumor-suppressor genes because:

Question 26 options:

a) Each allele must be altered and each person has two copies, or alleles, of each gene, one from each parent.

b) The first hit stops tissue growth and the second hit is needed to cause abnormal tissue growth.

c) Tumor-suppressor genes are larger than proto-oncogenes, requiring two hits to effect carcinogenesis.

d) The first hit is insufficient to cause enough damage to cause a mutation.

Question 27 (5 points)

What is the skin-related health risk induced by some types of chemotherapy?

Question 27 options:

a) Infection

b) Ultraviolet damage

c) Pain

d) Erythema

Question 28 (5 points)

When a child is diagnosed with cancer, which intervention has the greatest influence on the child's mortality rate?

Question 28 options:

a) Age at the time of diagnosis

b) Participation in clinical trials

c) Proximity to a major cancer treatment center

d) Parental involvement in the treatment planning

Question 29 (5 points)

Reflex activities concerned with the heart rate, blood pressure, respirations, sneezing, swallowing, and coughing are controlled by which area of the brain?

Question 29 options:

a) Pons

b) Midbrain

c) Cerebellum

d) Medulla oblongata

Question 30 (5 points)

The edema of the upper cervical cord after a spinal cord injury is considered life threatening because of which possible outcome?

Question 30 options:

a) Hypovolemic shock from blood lost during the injury

b) Breathing difficulties from an impairment to the diaphragm

c) Head injury that likely occurred during the injury

d) Spinal shock immediately after the injury

Question 31 (5 points)

What term is used to describe the complication that can result from a spinal cord injury above T6 that is producing paroxysmal hypertension, as well as piloerection and sweating above the spinal cord lesion?

Question 31 options:

a) Craniosacral dysreflexia

b) Parasympathetic dysreflexia

c) Autonomic hyperreflexia

d) Retrograde hyperreflexia

Save

Question 32 (5 points)

Atheromatous plaques are most commonly found:

Question 32 options:

a) . In larger veins

b) Near capillary sphincters

c) At branches of arteries

d) On the venous sinuses

Question 33 (5 points)

Multiple sclerosis is best described as:

Question 33 options:

a) A CNS demyelination, possibly from an immunogenetic virus

b) Inadequate supply of acetylcholine at the neurotransmitter junction as a result of an autoimmune disorder

c) The depletion of dopamine in the CNS as a result of a virus

d) A degenerative disorder of lower and upper motor neurons caused by viral-immune factors

Question 34 (5 points)

Graves disease develops from:

Question 34 options:

a) A viral infection of the thyroid gland that causes overproduction of thyroid hormone

b) An autoimmune process during which lymphocytes and fibrous tissue replace thyroid tissue

c) Thyroid-stimulating immunoglobulin, which causes overproduction of thyroid hormones

d) Ingestion of goitrogens, which inhibits the synthesis of the thyroid hormones, causing goiter

Question 35 (5 points)

Pathologic changes associated with Graves disease include:

Question 35 options:

a) High levels of circulating thyroid-stimulating immunoglobulins

b) Diminished levels of TRH

c) High levels of TSH

d) Diminished levels of thyroid-binding globulin

Question 36 (5 points)

A patient diagnosed with diabetic ketoacidosis (DKA) has the following laboratory values: arterial pH 7.20, serum glucose 500 mg/dl, positive urine glucose and ketones, serum potassium (K+) 2 mEq/L, and serum sodium (Na+) 130 mEq/L. The patient reports that he has been sick with the "flu" for a week. What relationship do these values have to his insulin deficiency?

Question 36 options:

a) Increased glucose use causes the shift of fluid from the intravascular to the intracellular space.

b) . Decreased glucose use causes fatty acid use, ketogenesis, metabolic acidosis, and osmotic diuresi

c) Increased glucose and fatty acids stimulate renal diuresis, electrolyte loss, and metabolic alkalosis.

d) Decreased glucose use results in protein catabolism, tissue wasting, respiratory acidosis, and electrolyte loss.

Question 37 (5 points)

Type 2 diabetes mellitus is best described as:

Question 37 options:

a) Resistance to insulin by insulin-sensitive tissues

b) The need for lispro instead of regular insulin

c) An increase in glucagon secretion from α cells of the pancreas

d) The presence of insulin autoantibodies that destroy β cells in the pancreas

Question 38 (5 points)

The common hay fever allergy is expressed through a reaction that is mediated by which class of immunoglobulins?

Question 38 options:

a) Immunoglobulin E (IgE)

b) Immunoglobulin G (IgG)

c) Immunoglobulin M (IgM)

d) T cells

Question 39 (5 points)

A person diagnosed with type 1 diabetes experiences hunger, lightheadedness, tachycardia, pallor, headache, and confusion. The most probable cause of these symptoms is:

Question 39 options:

a) Hyperglycemia caused by incorrect insulin administration

b) The dawn phenomenon from eating a snack before bedtime

c) Hypoglycemia caused by increased exercise

d) Somogyi effect from insulin sensitivity

Question 40 (5 points)

Hypoglycemia, followed by rebound hyperglycemia, is observed in those with:

Question 40 options:

a) The Somogyi effect

b) The dawn phenomenon

c) Diabetic ketoacidosis (DKA)

d) Hyperosmolar hyperglycemic nonketotic syndrome

Question 41 (5 points)

Which structure is lined with columnar epithelial cells

Question 41 options:

a) Perimetrium

b) Endocervical canal

c) Myometrium

d) Vagina

Question 42 (5 points)

Where is the usual site of cervical dysplasia or cancer in situ?

Question 42 options:

a) Where the squamous epithelium of the cervix meets the cuboidal epithelium of the vagina

b) Where the columnar epithelium of the cervix meets the squamous epithelium of the uterus

c) Where the squamous epithelium of the cervix meets the columnar epithelium of the uterus

d) Where the columnar epithelium of the cervix meets the squamous epithelium of the vagina

Question 43 (5 points)

Which statement best describes a Schilling test?

Question 43 options:

a) Administration of radioactive cobalamin and the measurement of its excretion in the urine to test for vitamin B12 deficiency

b) Measurement of antigen-antibody immune complexes in the blood to test for hemolytic anemia

c) Measurement of serum ferritin and total iron-binding capacity in the blood to test for iron deficiency

anemia

d) Administration of folate and measurement in two hours of its level in a blood sample to test for folic acid deficiency anemia

Question 44 (5 points)

In aplastic anemia (AA), pancytopenia develops as a result of which of the following?

Question 44 options:

a) Suppression of erythropoietin to produce adequate amounts of erythrocytes

b) Suppression of the bone marrow to produce adequate amounts of erythrocytes, leukocytes, and thrombocytes

c) Lack of deoxyribonucleic acid (DNA) to form sufficient quantities of erythrocytes, leukocytes, and thrombocytes

d) Lack of stem cells to form sufficient quantities of leukocytes

Question 45 (5 points)

Which statement is true regarding warm autoimmune hemolytic anemia?

Question 45 options:

a) Warm autoimmune hemolytic anemia occurs primarily in men.

b) It is self-limiting and rarely produces hemolysis.

c) Erythrocytes are bound to macrophages and sequestered in the spleen.

d) Immunoglobulin M (IgM) coats erythrocytes and binds them to receptors on monocytes.

Question 46 (5 points)

Hemolytic disease of the newborn (HDN) can occur if the mother:

Question 46 options:

a) Is Rh-positive and the fetus is Rh-negative

b) Is Rh-negative and the fetus is Rh-positive

c) Has type A blood and the fetus has type O blood

d) Has type AB blood and the fetus has type B blood

Question 47 (5 points)

When diagnosed with hemolytic disease of the newborn (HDN), why does the newborn develop hyperbilirubinemia after birth but not in utero?

Question 47 options:

a) Excretion of unconjugated bilirubin through the placenta into the mother's circulation is no longer possible.

b) Hemoglobin does not break down into bilirubin in the intrauterine environment.

c) The liver of the fetus is too immature to conjugate bilirubin from a lipid-soluble form to a water-soluble form.

d) The destruction of erythrocytes producing bilirubin is greater after birth.

Question 48 (5 points)

How does angiotensin II increase the workload of the heart after a myocardial infarction (MI)?

Question 48 options:

a) By increasing the peripheral vasoconstriction

b) By causing dysrhythmias as a result of hyperkalemia

c) By reducing the contractility of the myocardium

Question 49 (5 points)

What event is a characteristic of the function in Zone I of the lung?

Question 49 options:

a) Blood flow through the pulmonary capillary bed increases in regular increments.

b) Alveolar pressure is greater than venous pressure but not greater than arterial pressure.

c) The capillary bed collapses, and normal blood flow ceases.

d) Blood flows through Zone I, but it is impeded to a certain extent by alveolar pressure.

Question 50 (5 points)

What factor associated with gluten-sensitive enteropathy (celiac sprue) causes an infant to bruise and bleed easily?

Question 50 options:

a) Vitamin K deficiency from fat malabsorption

b) Bone marrow function depression

c) Iron, folate, and B12 deficiency anemias