

PATHOPHYS Module Exams

Module 1 Exam

Question 1

2.5 / 2.5 pts

True/False:

A bodybuilder's muscles will display hyperplasia.

☐

True

Correct!

☒

False

It will display hypertrophy.

Question 2

2.5 / 2.5 pts

True/False:

Barrett esophagus is an example of dysplasia.

☐

True

Correct!

☒

False

It's metaplasia

Question 3

0 / 2.5 pts

True/False:

Hypertrophy is an increase in the size of an organ or tissue caused by an increase in the number of cells

You Answered

☒

True

Correct Answer

☐

False

Question 4

2.5 / 2.5 pts

True/False:

Hypertrophy can occur under normal and pathological conditions.

Correct!

☒

True

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Page 1 of 73

Question 1

3 / 3 pts

True/False:

Blood tests for tumor markers are the single best screening tool for cancer. Why or why not?

Your Answer:

False. Tumor markers, which can be used for establishing prognosis, monitoring treatment and detecting recurrent disease, have limitations. Under benign situations, tumor markers can still be elevated. Whereas in early stages of malignancy, not elevated. They have a lack of specificity and are then limited in their ability to screen or diagnose accurately.

False, they are elevated in benign conditions, most are not elevated in the early stages of malignancy.

Question 2

3 / 3 pts

Tissue biopsy is of critical importance in what role?

Your Answer:

Play a critical role in histologic and cytologic studies for diagnosis of cancers.

Diagnosing the correct cancer and histology.

Question 3

4 / 4 pts

1. List two signs or symptoms a patient may present with that might indicate a cancer diagnosis:

2. What are two side effects commonly experienced by cancer patients?

Your Answer:

1) Bleeding and/or weight loss

2) Anorexia, hair loss

1. Bleeding; sore that doesn't heal; fluid in the pleural, pericardial, or peritoneal spaces; chest pain, shortness of breath, cough, abdominal discomfort or swelling. Other possible answers can include a mass or lump, pain (need to be specific), fatigue, fevers, weight loss

2. Weight loss, wasting of body fat and muscle tissue, weakness, anorexia, and anemia, fatigue, sleep disturbances

Question 4

10 / 10 pts

Explain the TNM system:

Your Answer:

TNM system is a detailed staging system, created by AJCC, is used by cancer facilities. It classifies cancers into stages using 3 tumor components; Tumor, Nodes, Metastasis. T is size and spread of the primary tumor. N is how involved the lymph nodes. M is the extent of metastatic involvement.

Classification:

Tx, T0, Tis, T1-4

Nx, N0, N1-3

Mx, M0, M1

T is the size and local spread of the primary tumor.

N is the involvement of the regional lymph nodes.

M is the extent of the metastatic involvement.

Lymphoma
Glioma

Correct!	Papilloma	benign
Correct!	Lipoma	benign
Correct!	Leiomyosarcoma	malignant
Correct!	Hemangioma	benign
Correct!	Adenocarcinoma	malignant
Correct!	Neuroblastoma	malignant
Correct!	Adenoma	benign
Correct!	Melanoma	malignant
Correct!	Lymphoma	malignant
Correct!	Glioma	malignant

Question 14

10 / 10 pts

A 62-year-old man with a 30-pack year smoking history is diagnosed with small cell lung cancer with metastasis to the bone. (1) Explain the process of how cancer spreads metastatically. (2) What symptoms might he have presented with? (3) Which screening test would he have benefited from?

Your Answer:

1. Metastasis is a multi-step process. Cancer cells break loose from the primary tumor and enter circulation via a blood vessel or lymph system. It finds a new favorable location to invade, grow, and establish blood supply.

2. Patient might have presented with shortness of breath, chest pain, and cough.

3. Patient would have benefited from a chest CT scan.

(1) Metastasis- a cancer cell must break loose from the primary tumor, invade the surrounding extracellular matrix, gain access to a blood vessel, survive its passage in the bloodstream, emerge at a favorable location, invade the surrounding tissue, begin to grow, and establish a blood supply. (2) Chest pain, shortness of breath, cough, bone pain. (3) Yearly low-dose chest CT.

Question 15

3 / 3 pts

Benign tumors have which of the following characteristics? **Select all that apply.**

☐

Undifferentiated cells

Correct!

Explain the challenges of diagnosing autoimmune disorders.

Your Answer:

Diagnosing is made by history, physical, and serological findings. Since some blood tests are more generic, results can be imprecise. Markers can be elevated in the presence of other diseases. Criteria for diagnosis: Evidence of an autoimmune reaction, immunological findings are not second to other conditions, and no other causes are found.

There are over 80 identified, many with overlapping presentations. Many manifestations are nonspecific and are seen in other non-autoimmune diseases. Blood testing isn't perfect either, as some tests are more generic and can be elevated in the presence of other diseases.

Question 2

2.5 / 2.5 pts

Multiple Choice:

Which type of immunity is characterized by the development of a specific response to an antigen?

☐

Innate immunity

Correct!

☒

Adaptive immunity

☐

Autoimmunity

☐

Active immunity

Question 3

2.5 / 2.5 pts

Multiple Choice:

What allows the lymphocyte to differentiate between self and foreign molecules?

☐

Antigen presenting cells

☐

Regulatory cells

Correct!

☒

Major histocompatibility complex (MHC) molecule

☐

Effector cells

Question 4

0 / 3 pts

T lymphocytes produce what type of immunity?

Your Answer:

Adaptive immunity

Cell-mediated

Question 5

Correct!



Type I



Type II



Type III



Type IV

Question 16

3.5 / 3.5 pts

Multiple Choice:

Which cell is NOT part of the adaptive immune response?

Correct!



Monocytes



Lymphocytes



Antigen presenting cells



Effector cells

Question 17

3.5 / 3.5 pts

Multiple Choice:

The body's ability to distinguish self from nonself is termed what?



Autoantibodies



Positive selection

Correct!



Self-tolerance



Anergy

Question 18

5 / 5 pts

Short answer:

What are autoantibodies?

Your Answer:

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Page 18 of 73

Correct!



True



False

Question 2

2.5 / 2.5 pts

True/False:

Exercise, allergens, and emotion can all contribute to an asthma attack.

Correct!



True



False

Question 3

2.5 / 2.5 pts

The breathing rate is determined by input from _____ that monitor oxygen, carbon dioxide, and pH levels in the blood.

Your Answer:

chemoreceptors

chemoreceptors

Question 4

2.5 / 2.5 pts

The _____ are the actual sites of gas exchange between the air and blood.

Your Answer:

alveoli

alveoli

Question 5

2.5 / 2.5 pts

True/False:

Asthma is considered reversible airway bronchoconstriction.

Correct!



True



False

Question 6

2.5 / 2.5 pts

True/False:

Intrapleural pressure is always negative in relation to alveolar pressure in a normal inflated lung.

Correct!



True



False

Question 7

2.5 / 2.5 pts

True/False:

The accessory muscles are the main muscles of inspiration.



True

Correct!



False

diaphragm

Question 8

0 / 2.5 pts

True/False:

The FEV₁/FVC ratio is decreased in restrictive lung disorders.

You Answered



True

Correct Answer



False

Question 9

5 / 5 pts

Fill in the blank:

The diaphragm is innervated by _____.

Your Answer:

the phrenic nerve, cervical nerves C3, C4, C5

C3, C4, C5

Question 10

5 / 5 pts

_____ is the flow of gases into and out of the alveoli of the lungs.

Your Answer:

ventilation

Ventilation

Question 11

1.5 / 2.5 pts

Hypertrophy of the submucosal glands

Question 14

2.5 / 2.5 pts

Multiple Choice:

Each of the following are TRUE of ARDS except:

☐

Chest x-ray shows a “white-out”

Correct!

☒

Presents with decreased respiratory rate

☐

Decreased surfactant function

☐

Increased capillary permeability

Question 15

10 / 10 pts

Short answer:

A 10-year-old boy who is having an acute asthma attack is brought to the ER. He is observed to be sitting up and struggling to breathe. His breathing is accompanied by use of accessory muscles, a weak cough, and audible wheezing sounds. His pulse is rapid and weak, and both heart and breath sounds are distant on auscultation. His parents relate that his asthma began to worsen after he developed a “cold,” and now he doesn’t get relief from his albuterol inhaler.

Explain the changes in physiologic function underlying his signs and symptoms.

Your Answer:

In asthma patients, the airways begin to narrow. Contact with a trigger, such as a cold virus, starts a cascade of inflammatory cells to cause epithelial injury, resulting in airway inflammation.

With the severe airway inflammation, patient is experiencing airway remodeling, development of specific structural changes in the airway wall. This can cause fixed obstruction in asthma patients and not reversible with inhalers or bronchodilators.

Recruitment of inflammatory cells from the bloodstream into the bronchial wall, where they directly attack the invading organisms and secrete inflammatory chemicals that are toxic to the organisms causes airway inflammation. Swelling of the bronchial wall, mucus secretion, constriction of the airway; bronchial hyper-responsiveness to stimuli causes airway obstruction or narrowing. They may discuss on a cellular level as well:

Upon a trigger, the cascade of neutrophils, eosinophils, lymphocytes, and mast cells cause epithelial injury. This causes airway inflammation, which further increases hyperresponsiveness and decreased airflow. Mast cells release histamine and leukotrienes. These cause major bronchoconstriction, inflammation, and mucus secretion. Mast cells can trigger multiple cytokine release, which causes more airway inflammation. The contraction of the airways and subsequent swelling leads to further airway obstruction.

Question 16

10 / 10 pts

Short answer:

Question 20

5 / 5 pts

Multiple Choice:

Each of the following can lead to atelectasis except:

☐

Pleural effusion

☐

Tumor mass

Correct!

☒

Thrombus

☐

Mucous plug

Question 21

5 / 5 pts

Multiple Choice:

Each of the following are helpful treatments for COPD patients except:

☐

Oxygen therapy

☐

Bronchodilators

Correct!

☒

Anticoagulants

☐

Pneumococcal vaccination

☐

Influenza vaccination

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Page 38 of 73

day went on, the tingling sensation got worse, and they started to have difficulty speaking. The patient's spouse reported that they were slurring their words. Past medical history includes a diagnosis of diabetes and hypercholesterolemia. By the time they are evaluated, their symptoms start to subside. The tingling disappears and their speech returns to normal. What do you suspect this patient has experienced? What evidence is there to support that diagnosis?

Your Answer:

The patient experienced a TIA, transient ischemic attack, or mini stroke. The patient's symptoms, tingling sensation, slurred speech, difficulty speaking, are signs of a stroke. However, with TIA, the symptoms/signs, will resolve within 24 hours. The patient's medical history of diabetes and hypercholesterolemia also are risk factors for stroke.

Answer: This patient has experienced a TIA. They have experienced symptoms consistent with oxygen deprivation to the brain, however their symptoms subsided within 24 hours of their onset.

Question 26

10 / 10 pts

Long Answer Essay

A 75-year-old male is brought to the emergency department via ambulance at 5 pm. The patient's spouse reports that when they woke up (approximately at 6 am) he reported to her that he was having some blurred vision but decided to go about his day. As the day progressed, he started experiencing tingling and feelings of weakness on the entire left side of his body. He has a past medical history of diabetes.

Based upon these symptoms and past medical history, what do you suspect this patient is experiencing? How would you confirm this diagnosis? What treatment should be administered? Explain why you chose that treatment.

Your Answer:

This patient is experiencing a stroke. A CT scan and MRI will be ordered to determine the type of stroke and rule out possible other disorders. A vascular imaging will be done to determine source of the block. Since it's been over 4 hours since symptom onset, the window to safely administer tPA has passed. A catheter-based method is necessary. This will mechanically break the clot and deliver drugs directly to the clot itself. A stent might be placed as well.

Answer: This patient is more than likely experiencing an ischemic stroke. A CT scan and MRI would be needed to determine if a clot was blocking blood flow to the brain tissue and to rule out a hemorrhagic stroke. If a clot is found, this patient would need to be re-perfused through catheter-based methods as they are outside of the 3-4.5 treatment window for the use of tPA drugs.

Question 27

10 / 10 pts

Long Answer Essay

A patient is being seen in your office with a primary complaint of daytime fatigue that has lasted for the past 2 months. They go on to tell you that they are having difficulty with work performance and are constantly on edge. You suspect they have chronic insomnia. What are the 4 primary symptoms of insomnia? Describe a nonpharmacologic treatment plan that you can prescribe for this patient.

Your Answer:

The 4 symptoms are:

Difficulty initiating sleep

Difficulty maintaining sleep

Waking up too early

Chronic nonrestorative (poor) sleep

Question 18

5 / 5 pts

Short answer:

Which GI hormone inhibits gastric acid secretion?

Your Answer:

Secretin

Answer: Secretin

Question 19

5 / 5 pts

True/False:

Anti-diarrheal medication can be used with all types of diarrhea.

☐

True

Correct!

☒

False

Question 20

5 / 5 pts

Fill in the blank:

Consistently ignoring the urge to defecate can result in _____.

Your Answer:

constipation

Answer: constipation

Question 21

0 / 5 pts

Multiple Choice:

Clinical manifestations of cirrhosis include each of the following EXCEPT:

☐

Splenomegaly

Correct Answer

☐

Cholelithiasis

☐

Portal hypertension

You Answered

☒

Coagulation factor deficiencies

☐

Encephalopathy

Question 22

If someone loses their balance when walking on uneven terrain, explain how tendons and ligaments work to protect the joint and structures within it.

Your Answer:

Tendons connects bones and muscles. Ligaments connect bone to bone. Tendons and ligaments are made up of collagen, a fibrous protein. Molecular structure of collagen contributes to high tensile strength. This allows for joint stability in the body.

The tendons and ligaments of joints serve in proprioception (the awareness of one's position in space or movement of the body). When these structures undergo stretch or torsional strain, these proprioceptive nerve fibers will cause a reflexive response to adjust the tension on the muscles (to maintain balance and not fall over) that support the joint protecting the capsule and other joint structures.

Question 18

Not yet graded / 5 pts

A patient presents to the ER with severe pain in their right ankle. Blood tests reveal serum uric acid levels of 7.8 mg/dL. They are kept for observation and their 24-hr urine specimen reveals underexcretion of urate. Which phase of gout are they in? What is the goal of your treatment given the phase they are in?

Your Answer:

Patient is in phase 2, acute gout arthritis. Goal is to address the attack and reduce the inflammation. This can be done by using NSAIDs, such as colchicine, or corticosteroids.

This patient is in phase 2 of gout or acute gout arthritis. The goal of treatment is to manage symptoms and terminate the acute attack primarily through NSAIDs.

Question 19

Not yet graded / 5 pts

Which of the following patients is at greater risk for developing osteoporosis and sustaining a fracture? Explain how you came to your conclusion. Patient A. is a 75-year-old white Caucasian male who has a history of a distal radius fracture at age 50. Patient B. is a 60-year-old African American female who is postmenopausal. She is active and does not have a history of fractures.

Your Answer:

Patient A.

The patient is a white male over the age of 70. He has a previous history of bone fractures.

Patient A is at higher risk. Even though he is a male, he is advanced in age, white Caucasian, and sustained a fracture after the age of 50. Patient B is a postmenopausal female; however, she is active and of African American descent which is associated with high BMD and low rates of fracture.

Question 20

Not yet graded / 5 pts

A 40-year-old patient sustains an incomplete spinal cord injury affecting their ability to walk. They primarily use a wheel chair to complete daily activities. Explain why this patient is at increased risk for developing OA in their lower extremities.

Your Answer:

Males have a higher risk of developing OA. Immobility is a risk factor for developing OA. It compromises the lubrication of the joint. This can lead to structural changes.

Immobilization can compromise lubrication of the joint which comes with range of motion and weight bearing. The decreased nourishment of the articular cartilage will eventually lead to the structural joint changes associated with OA.

Question 21