



(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2021/2022

ACADEMIC YEAR

FIRST YEAR THIRD TRIMESTER

MAIN EXAMINATION

FOR BACHELOR OF SCIENCE IN NURSING DEGREE

COURSE CODE: NUR 136

COURSE TITLE: PATHOPHYSIOLOGY

DATE: 26/08/2022

TIME: 9am – 12pm

INSTRUCTIONS TO CANDIDATES

Answer ALL Section one (1) MULTIPLE CHOICE QUESTIONS and ALL Section two (2) SHORT ANSWER QUESTIONS and any one (1) section THREE (3) LONG ANSWER QUESTION.

TIME: 3 Hours

This paper consists of 9 printed pages. Please Turn Over
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SECTION A: MULTIPLE CHOICE QUESTIONS ANSWER ALL QUESTIONS (50 MARKS)

1. When a cell gets injured, the first sign is:
 - A. Biochemical lesion.
 - B. An area of hyperplasia.
 - C. Chromatid.
 - D. Cellular necrosis.

2. An extrinsic factor that can cause cell aging and death is:
 - A. Down syndrome.
 - B. Sickle cell anemia.
 - C. Ultraviolet radiation.
 - D. Person's advanced age.

3. Which factor is a major modifiable risk factor for Coronary Artery Disease?
 - A. High cholesterol
 - B. Genetic predisposition
 - C. Age
 - D. Family history

4. Which cause accounts for 50% of all cases of hypertrophic cardiomyopathy?
 - A. Autoimmune disease
 - B. Malnutrition
 - C. Genetic predisposition
 - D. Myocardial Infarction

5. Which liver enzyme stimulates the adrenal cortex to secrete aldosterone?
 - A. Angiotensin I
 - B. Angiotensin II
 - C. Renin
 - D. Antidiuretic hormone

6. Asthma is caused by:
 - A. Sensitivity to specific allergens.
 - B. Severe respiratory tract infection.
 - C. Emotional stress.
 - D. Fatigue.

7. Tuberculosis is transmitted through:
 - A. The fecal-oral route.
 - B. Contact with blood.
 - C. Contact with urine.
 - D. Inhalation of infected droplets.

8. The major causes of stroke are:
 - A. Smoking, drug abuse, and high cholesterol levels.
 - B. Genetic and metabolic abnormalities.
 - C. Brain and spinal cord tumors.
 - D. Thrombosis, embolism, and hemorrhage.

9. Which neurologic disorder is characterized by progressive degeneration of the cerebral cortex?
 - A. Alzheimer's disease
 - B. Epilepsy
 - C. Guillain-Barré syndrome
 - D. Myasthenia gravis

10. What are the two phases of digestion?
 - A. Gastric and colonic
 - B. Salivation and secretion
 - C. Esophageal and abdominal
 - D. Cephalic and gastric

11. Which of the following is usually the initial event in appendicitis?
 - A. Lymph node enlargement
 - B. Obstruction of the appendiceal lumen
 - C. Ulceration of the mucosa
 - D. Perforation of the appendix

12. In women, pancreatitis is usually associated with:
 - A. Biliary tract disease.
 - B. Alcoholism.
 - C. Allergies.
 - D. Diabetes mellitus.

13. Osteoporosis is characterized by:
 - A. Porosity and brittleness.
 - B. Brittleness and swelling of the joints.
 - C. Crystal deposition and brittleness.
 - D. Progressive inflammatory destruction after new bone formation.

14. Which of the following is the most accurate measurement of glomerular filtration?
 - A. Blood pressure
 - B. Intake and output
 - C. Creatinine clearance
 - D. Blood Urea Nitrogen

15. The kidneys secrete erythropoietin when:
- A. Renin is secreted in response to a decrease in extracellular fluid volume.
 - B. Calcium levels are insufficient.
 - C. Vitamin D becomes inactive.
 - D. The oxygen supply in the blood circulating through the tissue drops.
16. Vital function of platelets is to:
- A. Form hemostatic plugs in injured blood vessels.
 - B. Regulate acid-base balance and immune responses.
 - C. Protect the body against harmful bacteria and infection.
 - D. Carry oxygen to the tissues and remove carbon dioxide from them.
17. Which of the following is the normal life span of an RBC?
- A. 90 days
 - B. 30 days
 - C. 240 days
 - D. 120 days
18. Thrombocytopenia is characterized by:
- A. Not enough circulating platelets.
 - B. Too many circulating platelets.
 - C. Decreased RBC production.
 - D. Decreased iron supply.
19. Which immunoglobulin is responsible for the hypersensitivity reaction?
- A. IgA
 - B. IgG
 - C. IgE
 - D. IgM
20. If the myocardium is deprived of blood supply, damage would be primarily from:
- A. Low oxygen supply
 - B. Low levels of platelets
 - C. Low levels of lactic acid
 - D. Low white blood cell count
21. The four types of microorganisms that cause infection are:
- A. Bacteria, flora, microbes, and viruses.
 - B. Bacteria, viruses, fungi, and parasites.
 - C. fungoid, spirochetes, mycoplasmas, and parasites.
 - D. Bacteria, yeast, flora, and parasites.

22. A 76-year-old patient is admitted with a history of heart failure and now presents with pulmonary edema. What pathophysiologic process is occurring?
- A. Perfusion to the lungs is interrupted by a pulmonary embolus.
 - B. Increased hydrostatic pressure in the capillaries causes fluid to leak into the alveoli, collapsing them.
 - C. Increased hydrostatic pressure in the capillaries causes fluid to leak into the interstitial spaces.
 - D. Fluid accumulates in the lung interstitium, alveolar spaces, and small airways.
23. Polyuria refers to:
- A. Excessive or large amounts of glucose excreted in the urine
 - B. Excessive or large amounts of testosterone excreted in the urine
 - C. Excessive or large amounts of protein in the urine
 - D. Excessive or large amount of urine being produced
24. A patient with chronic heart failure caused by pulmonic stenosis begins to have symptoms of abdominal pain and distention. On examination he's found to have an enlarged liver. What's the most likely cause of these findings?
- A. Cirrhosis
 - B. Hepatic vein engorgement
 - C. Hepatitis
 - D. Ascites
25. A patient with a history of chronic renal failure develops left-sided chest pain that begins in his sternum and radiates to his neck. It worsens with deep inspiration and eases when he sits up and leans forward. As you perform your assessment, you note that heart sounds are diminished. Which condition is most likely causing his symptoms?
- A. Pneumonia
 - B. Cardiac tamponade
 - C. Myocardial infarction
 - D. Pericarditis
26. In hyperthyroidism the thyroid gland: produces:
- A. Excessive insulin
 - B. Insufficient insulin
 - C. Excessive thyroxine
 - D. Insufficient thyroxine
27. Which neurotransmitter is deficient in the brains of patients with Alzheimer's disease?
- A. Dopamine
 - B. Serotonin
 - C. Norepinephrine
 - D. Acetylcholine

28. A 52-year-old patient is diagnosed with peptic ulcer disease caused by *Helicobacter pylori* infection. Infection with this bacteria leads to ulceration because:
- A. Bacteria colonize the mucous lining.
 - B. Bacteria cause regurgitation of duodenal contents into the stomach.
 - C. Bacteria release a toxin that destroys the stomach's mucous lining.
 - D. Bacteria cause persistent inflammation of the stomach.
29. Which of the following factors does not influence heart rate?
- A. Age
 - B. Body temperature
 - C. Stress
 - D. Skin colour
30. Which statement best describes the pathophysiology behind gastroesophageal reflux disease (GERD)?
- A. The sphincter doesn't remain closed and the pressure in the stomach pushes the stomach contents into the esophagus.
 - B. The mucosa takes on a "cobblestone" appearance.
 - C. A defect in the diaphragm permits a portion of the stomach to pass through the esophageal hiatus into the chest cavity.
 - D. *Helicobacter pylori* bacteria release a toxin that destroys the stomach's mucous lining.
31. The following conditions are causes of Pre Renal failure except?
- A. Heart failure
 - B. Acute tubular necrosis
 - C. Burns
 - D. Hypovolemic shock
32. Which of the following is a clinical sign and manifestation of chronic Kidney Failure
- A. Anemia
 - B. Proteinuria
 - C. Hyperkalemia
 - D. All the above
33. Elevated potassium levels
- A. Hyponatremia
 - B. Hyperkalemia
 - C. Hypercalcemia
 - D. None of the above
34. Anemia in Chronic Renal Failure is commonly be due to: -
- A. Hyperphosphatemia
 - B. Hemolysis
 - C. Excessive bleeding
 - D. Suppression of erythropoiesis

35. A 54-year-old woman admitted with acute pancreatitis says, 'I don't understand how I got this disease. I thought alcoholics got pancreatitis – I never drink.' Which of the following is the most appropriate response by the nurse?
- A. 'Were you a heavy drinker in the past?'
 - B. 'It also is prevalent in smokers; do you smoke cigarettes heavily?'
 - C. 'Gallstones also are a risk factor. We need to investigate for them.'
 - D. 'Drug abuse is a risk factor. Do you use drugs by injection?'
36. The most important blood cells in coagulation process are?
- A. Red blood cells
 - B. Granulocytes
 - C. Platelets
 - D. Lymphocytes
37. Cholecystitis is the inflammation of the:
- A. Stomach
 - B. Gall bladder
 - C. Spleen
 - D. Liver
38. Carbon monoxide exerts its harmful effect through: -
- A. Preventing release of oxygen from haemoglobin
 - B. Binding irreversibly to haemoglobin
 - C. Preventing utilization of oxygen by the cells
 - D. Inhibiting the formation of carbonic acid and its consequent dissociation into bicarbonate and hydrogen
39. Osteoarthritis:
- A. Is a condition that results from the loss of bone mass
 - B. Is a condition that only affects women
 - C. Is a condition resulting from the loss of cartilage at synovial joints
 - D. Is a condition involving all of the above
40. When the aetiology of a disease is unknown, the disease is said to be:
- A. Idiopathic
 - B. Chronic
 - C. Acute
 - D. Acquired
41. Hypersecretion of thyroxine would be caused by an increase in the release of: -
- A. Follicle Stimulating Hormone or Luteinising Hormone
 - B. Growth hormone releasing hormone or Melanocyte stimulating hormone
 - C. Thyroid Stimulating Hormone or Adrenocorticotrophic Hormone
 - D. Thyroid Releasing Hormone or Thyroid Stimulating Hormone

For questions 42 to 45, match the cellular changes in column A with the appropriate descriptions in column B.

- | Column A | Column B |
|-----------------------|---|
| 42. Hypertrophy _____ | a) Stable change to another cell type |
| 43. Hyperlasia _____ | b) increase in the size of cells |
| 44. Atrophy _____ | c) Decrease in the number of cells |
| 45. Metaplasia _____ | d) Increase in the number of cells |
| | e) No change in neither the size nor the number |

46. Common causes of iron deficiency anemia include the following EXCEPT: -
- A. Poor iron intake
 - B. Poor iron absorption
 - C. Chronic blood loss as in GI bleeding
 - D. Lack of vitamin B12
47. Causes of cerebral hypoperfusion include the following EXCEPT:
- A. Myocardial infarction
 - B. Cardiac arrhythmias
 - C. Increased intracranial pressure
 - D. Lying in Trendelenburg position.
48. Apoptosis has the following features except
- A. There is cell shrinkage in apoptosis
 - B. There are no acute inflammatory cells surrounding apoptosis
 - C. There may be single cell loss or affect clusters of cells
 - D. Apoptosis is seen in pathologic processes only
49. Which finding leads you to suspect acute glomerulonephritis in your 32 y/o patient?
- A. Dysuria, frequency, and urgency
 - B. Back pain, N/V
 - C. HTN, oliguria, and fatigue
 - D. Fever, chills, and right upper quadrant pain radiating to the back
50. Clinical manifestations of acute glomerulonephritis include which of the following?
- A. Chills and flank pain
 - B. Oliguria and generalized edema
 - C. Hematuria and proteinuria
 - D. Dysuria and hypotension

SECTION B: (SHORT ANSWER QUESTIONS) (30 MARKS)

ANSWER ALL QUESTIONS

1. State five risk factors associated with development of coronary artery disease? (5 marks)
2. Outline the classical signs of acute inflammation (5 marks)
3. Describe the mechanisms of Leukocyte Recruitment and Activation (5 marks)
4. Define the following terms: (5 marks)
 - i. Pathophysiology,
 - ii. Diagnosis,
 - iii. Disease,
 - iv. Aetiology
 - v. Inflammation
5. Explain why should nurses study Pathophysiology? (5 marks)
6. State the clinical manifestations of Asthma (5 marks)

SECTION C: (LONG ANSWER QUESTIONS) (20 MARKS)

ANSWER ONLY ONE QUESTION

1. Discuss the Pathophysiology, Clinical features, diagnosis and complications of myocardial infarction
2. Define COPD, compare/contrast chronic bronchitis and emphysema in regard to pathophysiology and clinical features.