

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF BACHELOR OF SCIENCE
(NURSING)

SUPPLEMENTARY EXAMINATIONS

NURS 222: HEMATOLOGY

STREAMS: BSC (NURS)

TIME: 2 HOURS

DAY/DATE: TUESDAY 10/8/2021

2.30 P.M. – 4. 30 P.M.

INSTRUCTIONS:

- Do not write anything on the question paper.
- Mobile phones and any other reference materials are NOT allowed in the examination room.
- The paper has three sections. Answer ALL questions
- All your answers for Section I (MCQs) should be on one page.
- Number ALL your answers and indicate the order of appearance in the space provided in the cover page of the examination answer booklet.

PART I: Multiple Choice Questions (20 marks). Choose the most appropriate response

1. A 34 year old woman sustains severe burns over most of her body surface when her propane stove exploded. What is disrupted most significantly in this patient?
 - a. Antibody production
 - b. Complement
 - c. First line defence
 - d. Phagocytosis
2. The evaluation in a newly diagnosed case of acute lymphoid leukemia (ALL) should routinely include all of the following EXCEPT
 - A. bone marrow biopsy
 - B. lumbar puncture
 - C. complete metabolic panel
 - D. cytogenetic testing

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3. All the following are suggestive of iron deficiency anemia EXCEPT
 - A. koilonychia
 - B. pica
 - C. decreased serum ferritin
 - D. decreased total iron-binding capacity (TIBC)

4. Which of the following statements is true?
 - A. Factor VIII deficiency is characterized clinically by bleeding into soft tissues, muscles, and weight bearing joints.
 - B. Congenital factor VIII deficiency is inherited in an autosomal recessive fashion.
 - C. Factor VIII deficiency results in prolongation of the prothrombin time.
 - D. Factor VIII complexes with Hageman factor, allowing for a longer half-life.

5. Which of the following statements correctly describes characteristics of stem cells?
 - A. Ability to differentiate into a variety of mature cells types
 - B. Capacity for self-renewal
 - C. Generate, maintain, and repair tissue
 - D. A and C

6. Aplastic anemia has been associated with all of the following EXCEPT
 - a. carbamazepine therapy
 - b. methimazole therapy
 - c. non-steroidal inflammatory drugs
 - d. parvovirus infection

7. Which of the following is an appropriate intervention for a patient with sickle cell disease experiencing priapism that has lasted four hours?
 - a. Administration of opioid analgesics
 - b. Application of ice packs to the penis
 - c. Intravenous heparin boluses
 - d. Restriction of fluid intake

8. Which of the following is characteristic of pernicious anemia?
 - a. increased production of intrinsic factor
 - b. decreased absorption of vitamin B₁₂
 - c. antibodies to gastric HCl
 - d. decreased absorption of folate

9. Which of the following deficiencies would most likely lead to megaloblastic anemia?
 - a. vitamin E deficiency
 - b. vitamin B₆ deficiency
 - c. iron deficiency
 - d. folic acid deficiency

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10. The peripheral blood of a patient with iron deficiency anemia will most likely show what picture?
- microcytic, hypochromic red cells
 - microcytic, normochromic red cells
 - macrocytic, hypochromic red cells
 - normocytic, hypochromic red cells
11. With increased intravascular hemolysis which of the following will likely occur?
- the test for methemalbumin will be negative
 - urine hemosiderin will be increased
 - unconjugated bilirubin levels will remain normal
 - the reticulocyte count will decrease
12. A patient has anemia, decreased RBC indices, and targets on the peripheral smear. Serum iron is normal and electrophoresis shows increased HbF and HbA₂. What is a possible diagnosis?
- alpha thalassemia
 - sideroblastic anemia
 - beta thalassemia
 - anemia of chronic disease
13. The anemia of chronic disease may be caused by which of the following:
- impaired iron metabolism
 - autoantibodies
 - increased EPO secretion
 - increased RBC lifespan
14. All of the following describe multiple myeloma, EXCEPT:
- malignant plasma cells infiltrate the bone marrow
 - hypercalcemia
 - low levels of plasma immunoglobulin
 - light chains are excreted in the urine
15. Why is there decreased production of blood cells in the marrow in acute leukemia?
- there is a stem cell defect
 - there is a growth factor deficiency
 - there is an erythropoietin deficiency
 - the malignant cells replace normal marrow
16. Which of the following coagulation factors does Antithrombin III inhibit?
- factor V
 - factor VIII
 - factor IX
 - factor XIII

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17. Which of the following test results would most likely be seen in Hemophilia A?
- an abnormal PT
 - an abnormal Bleeding Time
 - abnormal von Willebrand factor levels
 - an abnormal APTT
18. Which of the following tests would be normal in von Willebrand disease?
- a factor VIII assay
 - von Willebrand factor multimer analysis
 - tests for platelet aggregation
 - thrombin time
19. A five-year-old patient with sickle cell disease presents with splenic sequestration, oxygen saturation value of 95%, temperature 37.5°C (99.5°F), heart rate 148, respirations 28, and blood pressure 90/36. The patient's lab values include a white blood cell count 5,000/mm³, hemoglobin 5.2, and platelet count 175,000. What is the most important initial intervention?
- Administration of intravenous antibiotics
 - Initiation of oxygen via nasal cannula
 - Ten breaths on an incentive spirometer
 - Transfusion of 10 ml/kg packed red blood cells
20. A 6-year-old boy in Kenya develops swelling of the jaw. The mass responds rapidly to chemotherapy. What is the most likely diagnosis?
- Burkitt's lymphoma
 - Follicular lymphoma
 - Acute lymphoblastic leukemia
 - Lymphoblastic lymphoma

PART II: SHORT ANSWER QUESTIONS (40 MARKS) ANSWER ALL QUESTIONS

- Outline the normal parameters of formed elements of blood (10 marks)
- Outline any five (5) clinical manifestations of Hodgkin's lymphoma (5 marks)
- Briefly explain the **pathophysiology** leading to **sickle cell crises** (6 marks)
- Describe the pathophysiology of acute myeloid leukemia (4 marks)
 - State any five (5) clinical manifestations of acute myeloid leukemia. (5 marks)
- Describe the intrinsic pathway of coagulation (10 marks)

PART III: LONG ANSWER QUESTIONS (40 MARKS)

- Haemophilia is one of the bleeding disorders
 - State six (7) clinical manifestations of hemophilia (7 marks)
 - Outline any three (3) laboratory investigations carried out to confirm diagnosis (3 marks)
- Describe the management of patient with hemophilia. (10 marks)

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2. Anaemia is a common medical problem in resource-scarce settings.
 - a. List any four (4) types of anaemia (2 marks)
 - b. Outline ten (10) clinical features of anaemia (5 marks)
 - c. Discuss the management of a patient with a specified type of anaemia (13 marks)
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