



KENYATTA UNIVERSITY
EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN MEDICAL
LABORATORY SCIENCE
HML 206: HEMATOLOGY 11

1ST SEMESTER 2021/2022

TIME: 2 HOURS

INSTRUCTIONS: Answer Question ONE and any other TWO.

SECTION A: Answer all questions each 4 marks

1. List four complications likely to occur on sickle cell patients. (4 marks)
2. Enumerate four causes of pancytopenia. (4 marks)
3. Describe four causes of iron overload. (4 marks)
4. Describe four red blood cell (RBC) inclusion bodies which may be seen in the peripheral blood film. (4 marks).
5. Describe four abnormalities of neutrophil that can be seen in a peripheral blood. (4 marks).

SECTION B: Answer one question (20 marks)

6. (a) Discuss classification of acute leukemia based on French American and British (FAB) scheme. (10 marks).
- (b) Compare and contrast bone marrow aspiration and trephine biopsy. (10marks)
7. (a) Discuss various forms of alpha and beta thalassemia syndromes. (14 marks)
- (b) Describe disorders emanating from abnormal hemoglobin. (6 marks)

SECTION C: Answer all questions in the Booklet.

(1/2 marks each)

1. In the anaemia of chronic disease, which of the following statements are true?
 - a) The serum iron is high
 - b) The serum ferritin is low
 - c) The mean cell volume is raised
 - d) The hepcidin level is raised
2. Which of the following haemoglobin genetic abnormalities are associated with thalassaemia major?
 - a) β_{+}/β_{+}
 - b) $\alpha 4$ gene deletion
 - c) $\alpha 3$ gene deletion
 - d) β_0/β_0
3. Which of the following statements about the anaemia of renal failure is true?
 - a) It responds to erythropoietin
 - b) It is macrocytic
 - c) Target cells are a feature in the blood film
 - d) Red cell lifespan is normal
4. With respect to hepcidin, which of the following statements are true?
 - a) It reduces iron absorption
 - b) Its serum level is high in iron deficiency
 - c) Synthesis is stimulated by hypoxia
 - d) It causes reduced erythropoietin release
5. How much iron is contained in a unit (400–450 mL) of blood?
 - a) 5–10 mg
 - b) 10–20 mg
 - c) 200–250 mg
 - d) 400–500 mg

6. Which of the following organs is not affected with Iron overload?
- a) Liver
 - b) Heart
 - c) Pituitary
 - d) Kidneys
7. Which of the following are features of intravascular haemolysis?
- a) Jaundice
 - b) Haematuria
 - c) Haemosiderin in urine
 - d) Spherocytosis in peripheral blood film
8. Which of the following is true of sickle cell anaemia in adults?
- a) The usual haemoglobin level in adults is 100–130 g/L
 - b) Stroke is a major cause of death
 - c) The spleen is usually enlarged
 - d) Iron deficiency often coexists
9. Which of the following are causes of neutrophil leucocytosis?
- a) Pregnancy
 - b) Drug reaction
 - c) Asthma
 - d) Bacterial infection
10. The commonest cause of anaemia in the Kenya is which one of the following?
- a) Iron deficiency
 - b) B12 deficiency
 - c) Non-Hodgkin's lymphoma
 - d) Autoimmune haemolytic anaemia
11. Which of the following proteins inhibit haemostasis?
- a) Thrombin
 - b) Tissue factor
 - c) Plasminogen
 - d) Fibrin

12. Which of the following are inherited disorders of platelet function?
- a) Fanconi syndrome
 - b) Glucose-6-phosphate dehydrogenase deficiency
 - c) von Willebrand disease
 - d) Christmas disease
13. Inherited deficiencies of which of the following coagulation factors cause severe bleeding?
- a) Factor XII
 - b) Factor IX
 - c) Platelet-derived growth factor
 - d) Factor XI
14. Which of the following is an important causes of disseminated intravascular coagulation (DIC)?
- a) Chronic myeloid leukaemia (CML)
 - b) Hodgkin lymphoma (HL)
 - c) Retained products of conception
 - d) Twin pregnancy
15. The following factors are associated with a good prognosis in acute lymphoblastic leukaemia (ALL)
- a) Male sex
 - b) Age >20 years
 - c) Presence of the Philadelphia chromosome
 - d) Rapid fall in white count following commencement of treatment
16. Which of the following statements about the anaemia of renal failure is true?
- a) It responds to erythropoietin
 - b) It is macrocytic
 - c) Target cells are a feature in the blood film
 - d) Red cell lifespan is normal

17. With respect to hepcidin, which of the following statements are true?

- a) It reduces iron absorption
- b) Its serum level is high in iron deficiency
- c) Synthesis is stimulated by hypoxia
- d) It causes reduced erythropoietin release

18. How much iron is contained in a unit (400–450 mL) of blood?

- a) 5–10 mg
- b) 10–20 mg
- c) 200–250 mg
- d) 400–500 mg

19. Which of the following organs is not affected with Iron overload?

- a) Liver
- b) Heart
- c) Pituitary
- d) Kidneys

20. Which of the following are features of intravascular haemolysis?

- a) Jaundice
- b) Haematuria
- c) Haemosiderin in urine
- d) Spherocytosis in peripheral blood film