GREAT LAKES UNIVERSITY OF KISUMU
P.O. BOX 2224 KISUMU 40100
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF NURSING
JAN - APR 2024 ACADEMIC SEMESTER
END OF SEMESTER FINAL EXAMINATION
CODE: HNS213 – HEMATOLOGY

REGISTRATION NO: ……..

TIME: 3 HOURS

Instructions to candidates

1. Read the Instructions carefully before attempting to answer any question in any section.
2. Enter your examination number and course code in the space provided in the answer sheet.
3. All questions are compulsory unless specified.
4. For **Section A**, MCQ is 1 mark, answer all questions.
5. For **Section B**, Short answer questions, answer all questions following each other
6. For **Section C**, Essay/Long Answer questions, answer all questions.
7. The wrong numbering of questions or part of the question will result in a 5% mark deduction from the relevant part.

SECTION A_1: MULTIPLE CHOICE QUESTIONS (18 x 1 = 18 Marks)

INSTRUCTION: Answer all questions on the answer sheet provided

1. **Malignant disorders that affect blood-forming tissues of the lymph system and spleen are referred to as_____.**

A. Leukomoid reaction
B. Lymphadenopathy
C. Proliferative
D. Leukaemia
E. Malignant

2. Which of the following terms is assigned to Factor VIII?

A. Antihemophilic A factor
B. Hemophilic A factor
C. Hemophilia factor
D. Labile factor
E. Proaccelerin

3. During the second trimester of pregnancy, where is the predominant site of RBC production?

A. Liver
B. Thymus
C. Yolk sac
D. Bone marrow
E. Lymph nodes

4. The following event happens during secondary haemostasis;

A. Activation of the coagulation cascade
B. Deactivation of zymogens
C. Integration of platelets
D. Inactivation precursors
E. Adhesion of Platelets

5. All can cause iron deficiency anaemia EXEPT_____.

A. Pregnancy
B. Menorrhagia
C. Bleeding from GIT
D. Luck of Intrinsic factor
E. Vitamin B 12 deficiency

6. Which of the following tests is most helpful in the diagnosis of thalassemia?

A. Serum iron and iron binding capacity
B. Bone marrow iron stain
C. Hb electrophoresis
D. Platelets count
E. Hb estimation

7. What is Thrombocytopenia?

A. A decrease in the number of platelets in the body
B. A decrease in the number of platelets in peripheral blood
C. A decrease of total platelets in the body below normal
D. A decrease in circulating Platelets below the reference range value
E. A decrease in the number of thrombocytes

8. Vitamin B 12 deficiency may

A. Result in anaemia with small RBCs with normal central of paler
B. Does not cause a reduction in the circulating platelet level
C. Result from disease of the terminal part of the ileum
D. Result in acanthocytosis with marked burr cells
E. Cause wasting of gastric mucosa

9. A leukemia that involves red cells and granulocytic precursors is called_____.

A. Lymphatic
B. Myelogenous
C. Erythroleukemia
D. Acute-chronic vera
E. Monocytic with erythrocytes increase

10. _____ is caused by removal of irreversibly sickled cells by macrophages

A. Haemolytic anaemia
B. Sickle cell anaemia
C. Immune response
D. Tissue Crisis (TC)
E. Mutation

11. What are the two chains of Spectrin?

A. alpha and beta
B. Band 3 and 4.1
C. Actin and myelin
D. Alpha and gamma
E. Spectrin and Ankyrin

12. Leukaemia can be classified based on _____.

A. The onset of the disease and cell linage affected
B. Myeloid and lymphoid leukaemia
C. Acute and chronic leukaemia
D. Acute and delayed leukaemia
E. B and C

13. Which diseases/conditions can be differentiated by performing a Solubility test?

A. Sickle cell anaemia (HbSS) from HbSD sickle cell disease
B. Thalassemia and hereditary spherocytosis
C. Thalassemia major and alpha thalassemia
D. Thalassemia and HbSD sickle cell disease
E. Hepatomegaly and splenomegaly

14. All can be associated with sickle cell anaemia EXEPT____.

A. Infection
B. Organ damage
C. Chest syndrome
D. Bleeding disease
E. Vaso-occlusive crisis

15. An increase in Red Blood Cell (RBC) mass with or without an increase in granulocytes and platelets in the absence of physiologic stimulus is referred to as_____.

A. Absolute increase of RBCs
B. Relative increase of RBCs
C. Polycythaemia Vera
D. Rbcs proliferation
E. Dehydration

16. Which laboratory test is used in the diagnosis of immune haemolytic anaemia?

A. Rh typing
B. Thick smear
C. Cross-match
D. Reverse grouping
E. Peripheral blood film

17. Which one is the cause of megaloblastic anaemia?

A. Sufficiency of Vit B12
B. Deficiency of folate
C. Pernicious anaemia
D. Drugs
E. Exposure to radiation

18. Which of the following laboratory features is found in peripheral blood smear from a patient with G6PD deficiency?

A. Pappenheimer bodies
B. Howell jolly bodies
C. Dohle bodies
D. Heinz bodies
E. Cabot rings

SECTION A_2: MATCHING (22 x 1 = 22 Marks)

INSTRUCTIONS: Match items in column A by writing a letter of the corresponding item from column B in the answer sheet provided

	Column A		SN	Column B
19.	A chronic, hypochromic, microcytic anaemia		A.	Malar rash
20.	A group of genetic disorders that result in inadequate normal Hb production		B.	H pylori
21.	Laboratory tests to assess platelet function and the body's ability to form a clot		C.	Platelets Redistribution
22.	Caused by activation of the coagulation cascade when damaged a vessel is damaged		D.	Spherocytosis
23.	Labile factor		E.	Anaemia
24.	A clot is kept small to prevent vascular occlusion		F.	Formation of thrombin
25.	Proaccelerin		G.	Sequestration of Platelets
26.	Resembles the wings of a butterfly unfolding across both cheeks occurs in many cases of lupus		H.	Iron deficiency anaemia
27.	Can be classified based on the causes		I.	Bleeding time
28.	Decreased platelet production		J.	hypoproliferative
29.	The removal of the inflamed Synovium		K.	Leukaemia
30.	Fingers and toes that turn white or blue when exposed to cold or during stressful periods		L.	Hemolytic
31.	An autoimmune disorder that affects the lining of joints		M.	nonspecific test
32.	Sequestration of platelets into the extravascular space		N.	tendon repair
33.	A marked decrease in the anucleated blood cell count		O.	Haemostasis
34.	It has been associated with thrombocytopenia		P.	Factor V
35.	Iron deficiency anaemia		Q.	Platelets are reduced
36.	One of the predictors that can decrease platelet production include		R.	Synovectomy
37.	The size of erythrocytes is larger than normal		S.	Antinuclear antibody (ANA) test negative
38.	An indication of a stimulated immune system		T.	elevated CRP

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	in the diagnosis of Lupus			
39.	One of the laboratory features of thalassemia		U.	Folate deficiency
40.	Indicate the presence of an inflammatory process in the body		V.	Antinuclear antibody (ANA) test positive
			W.	Raynaud's phenomenon
			X.	Rheumatoid arthritis
			Y.	Maculopapular eruption
			Z.	Codocytes
			AA.	Thalassemia

SECTION B: SHORT ANSWER QUESTIONS (30 MARKS)

INSTRUCTION: Answer the below questions on the answer sheets provided.

41. List the sources of errors when performing leucocyte count **[5 Marks]**

42. Mention any two semi-quantitative tests which can be done in a clinical laboratory to support Rheumatoid arthritis diagnoses **[2 Marks]**

43. Enlist three (3) laboratory tests that are used to help diagnose Immune haemolytic anaemia. **[3 Marks]**

44. State the roles of Plasminogen activator inhibitor-1 (PAI-1), and antiplasmin. **[5 Marks]**

45. Between beta and alpha thalassemia which one is more likely to develop earlier during infancy life, and why? **[4 Marks]**

46. List five (5) components of haemostasis. **[6 Marks]**

47. Briefly explain about hematopoiesis. **[5 Marks]**

SECTION C: EASY QUESTIONS (30 MARKS)

INSTRUCTION: Answer the below questions on the answer sheets provided.

48. In detail describe various techniques of performing blood films **[12 Marks]**

49. A 75-year-old man presents with a 3-month history of increasing tiredness and breathlessness on mild exertion. On examination, he has the pallor of the mucous membranes. His spleen is not palpable. His blood count shows a hemoglobin of 87 g/L with an MCV of 105fl and his serum bilirubin is normal.

a) What are the most likely causes of these symptoms and findings? **[5 Marks]**

b) What will the blood film show? **[6 Marks]**

c) What further information can you obtain from the blood count? **[4 Marks]**

d) What is the most likely cause of the anaemia and how should it be treated? **[3 Marks]**

"END OF EXAMINATION – GOOD LUCK"