"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES

DEPARTMENT OF HEALTH SCIENCES

SLS 202 FINAL HAEMATOLOGY THEORY

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER 2018

LECTURER: PNAGO

DURATION: 3HRS

INSTRUCTIONS

Do not write your name on the answer sheet

Use Answer Sheets Provided

Begin your answer for Each Question in section C on a New Page

Credit is Given for Neat Presentation

Section A: (40 Marks)

Answer all questions by either choosing T for True or F for False for each of the statements in each question

1. When assessing RBCs in a peripheral blood film look for:

T F (A) The red blood cell number and distribution

T F (B) size

T F (C) shape

T F (D) degree of haemoglobinization

2. As a rough guide, on the stained peripheral blood film, normal red cell size appears to be about the same as that of :

T F (A) The small monocyte

T F (B) The reticulocyte

T F (C) The schistocyte

T F (D) The nucleus of a small lymphocyte

3. A 2year old child was seen by his physician for pallor & an enlarged abdomen. Results of laboratory tests showed a severe anaemia. Family history revealed a mother & maternal uncle who had lifelong anemia. Further testing revealed the child had thalassemia. The anemia is an example of :

T F (A) an extrinsic erythrocyte defect

T F (B) an intrinsic erythrocyte defect

T F (C) an erythrocyte enzyme defect

T F (A) an acquired hemolytic anemia

4. Quality assurance program involves components which:

T F (A) deals with all aspects affecting the test outcome occurring prior to the testing procedure

T F (B) incorporates all aspects affecting the testing procedure itself

T F (C) deals with all aspects affecting the test outcome occurring after the testing procedure

T F (D) deals with external quality assurance

5. Of the Vasopressin (ADH) Mechanism:

T F (a) It causes thirst

T F (b) It stimulates water reabsorption from urine

T F (c) It increase blood volume

T F (d) It decreases blood volume

6. One of the most important buffer systems of the body is the :

T F (a) chloride shift

T F (b) Bohr Effect

T F (c) heme-heme interaction

T F (d) ODC

7. Examples of signaling molecules or factors in human blood are :

T F (A) Central pallor

T F (B) cytokines

T F (C) hormones

T F (D) Only (A) and (B) are correct

8. Exchange of fluid between capillaries and tissues is determined by:

T F (A) Osmotic pressure

T F (B) RDW

T F (C) Hydrostatic pressure

T F (D) Oncotic pressure

9. Cells occupy what percentage of blood volume:

T F (A) 60%

T F (B) 55%

T F (C) 45%

T F (D) 90%

9. Signs of anemia obtained by physical examination include the following:

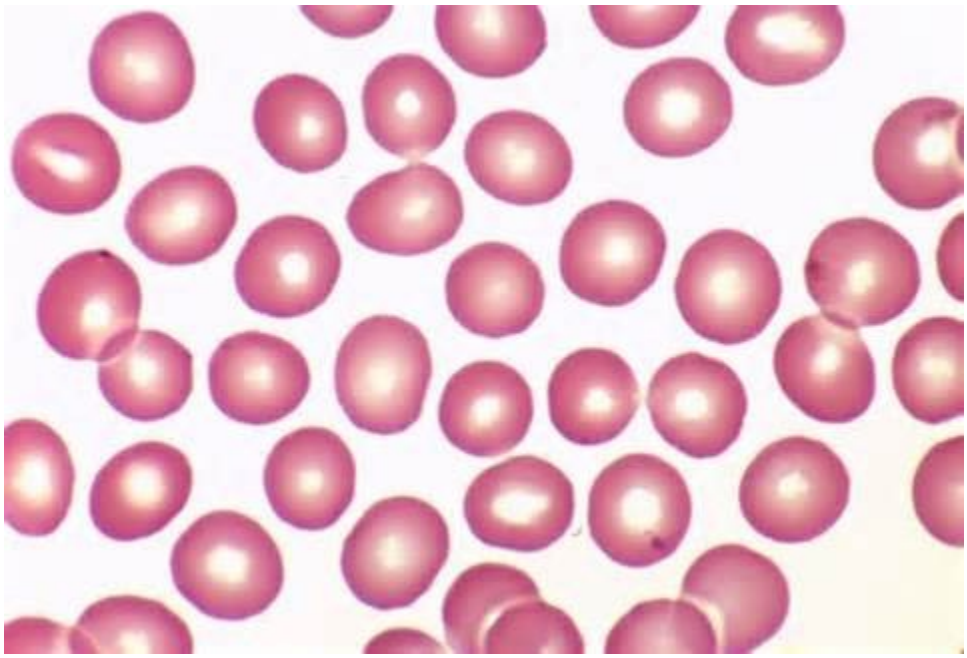
T F (A) Hypotension

T F (B) Bone deformities

T F (C) Koilonychia

T F (D) Glossitis

10. In respect to red blood cells comment on the blood picture below:



T F (A) Normocytic

T F (B) Hypochromic

T F (C) Acanthocytosis

T F (D) Anisochromasia

11. Red blood cells:

T F (A) **primarily function** to transport oxygen from the tissues to lungs

T F (B) do not synthesize the enzyme carbonic anhydrase

T F (C) if mature, are anuclear

T F (D) is about 88fl in volume

12. The major Hb during the hepatic phase of fetal haemopoiesis is:

T F (A) $\alpha_2\gamma_2$

T F (B) $\alpha_2\beta_2$

T F (C) $\zeta_2\varepsilon_2$

T F (C) $\alpha_2\varepsilon_2$

13. The following are the most numerous white blood cells in a healthy person:

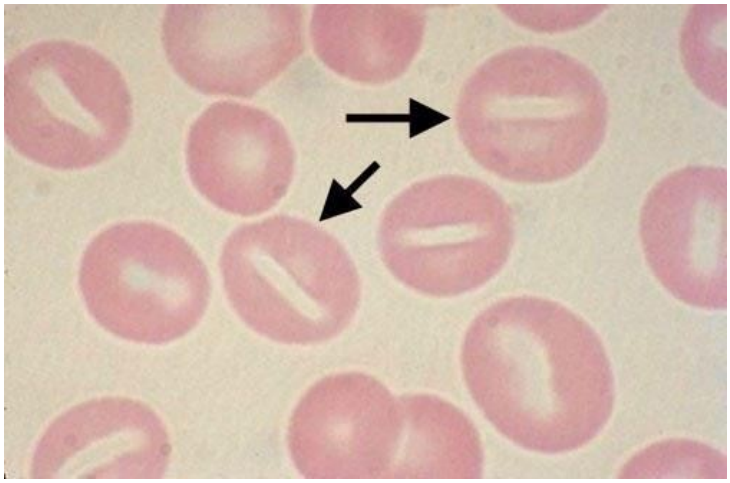
T F (A) Platelets

T F (B) Basophils

T F (C) Lymphocytes

T F (D) Neutrophils

14. Name the red cells pointed below:



T F (A) schistocytes

T F (B) target cells

T F (C) stomatocytes

T F (D) acanthocytes

15. Which cell is characterized by the following features?

- ✓ 15 to 20µm in diameter
- ✓ Delicate nucleus with prominent nucleoli
- ✓ Stains positive with myeloperoxidase

T F (A) Monocyte

T F (B) Myelocyte

T F (C) Lymphocyte

T F (D) Myeloblast

16. Examples of negative regulators of Haematopoiesis are

T F (A) Interferons

T F (B) TNF (tumor necrosis factor)

T F (C) Stem cell inhibitor

T F (D) Erythropoietin

17. The bone marrow in aplastic anemia is typically:

T F (A) hypocellular

T F (B) hypercellular

T F (C) dysplastic

T F (D) normal

18. Lymphocytes can be differentiated from monocytes because monocytes have a:

T F (A) large variation in size

T F (B) more lobular nucleaus & fine grey granular cytoplasm

T F (C) low N: C ratio with intense basophilia on the cytoplasmic edges

T F (D) round dense chromatin nuclear pattern & sky blue cytoplasm

19. Leucocytosis can be defined as an increase in:

T F (A) neutrophils, monocytes, & macrophages

T F (B) eosinophils, neutrophils, erythrocytes, & basophils

T F (C) neutrophils, eosinophils, monocytes, basophils & lymphocytes

T F (D) neutrophils, eosinophils, monocytes, basophils, lymphocytes & megakaryocytes

20. What coagulation plasma protein should be assayed when platelets fail to aggregate properly?

T F (A) FVIII

T F (B) Fibrinogen

T F (C) Thrombin

T F (D) VWF

Section B: Answer <u>all</u> questions: (Each question carries 5 marks)

1. Choose the best matching pairs of the following:

I. wet blood film preparation	A. Ammonium oxalate
II. Porphyrias	B. 1% Hcl
III. Manual platelet counting	C. Sickle cell slide test
IV. Sodium methabisulphite	D. Lead Poisoning
V. Manual WBC counting	E. Pseudoagglutination

I----------II----------III----------IV----------V----------

2. Why don't newborns with HbS (sickle cell disease) experience vaso –occlusive crisis?

3. Arrange the following in proper maturation sequence starting with the least mature:
   - Reticulocyte
   - Basophilic normoblast
   - polychromatophlic/polychromatic normoblast
   - erythrocyte
   - othorchromic normoblast
4. What factors influence an increase in the amount of oxygen delivered to tissue during an aerobic workout or very strenuous exercise?

Section C (Answer three questions, each question carries 20 marks)

1.

(a). Patients with megaloblastic anemia often present with a yellow or pallor. What is the diagnostic significance of this clinical symptom? (14marks)

(b). List abnormal morphological findings on a stained blood smear comprise the triad (set of three related things) in megaloblastic anaemia? (6marks)

2. Compare the Pathophysiology of & clinical findings in ABO-HDN and Rhesus –HDN. (20marks)
3. Contrast the malignant neoplastic cells in ALL with those found in AML (20 marks)
4. Expand the following statement:
   - All of the major hemostasis systems are put under study, thus blood vessels, blood cells & plasma proteins so as to prevent, predict, diagnose & manage haemostatic disease. (20marks)
5. Explain how the adverse effects following exposure of oxidant drugs or chemicals, come about, in a male police officer with G6PD deficiency (20marks)