CANDIDATE NUMBER……

"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES

DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS

END OF SEMESTER EXAMINATIONS

NSLS202: HEMATOLOGY THEORY

NOVEMBER 2023

LECTURER: MR S. BANHWA

DURATION: 3 HOURS

INSTRUCTIONS

1. Write your candidate number on the space provided on top of each page
2. Answer **all** questions in sections A on the question paper.
3. Answer **all** questions in section B on separate answer sheets provided.
4. Answer any **3** questions in section C on separate answer sheets provided
5. Mark allocation for each question is indicated at the end of the question
6. Credit will be given for logical, systematic and neat presentations in sections B and C

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SECTION A: MULTIPLE CHOICE [40 Marks]

- **Answer all questions by encircling the correct response T for TRUE or F for FALSE for each statement in all the questions**
- **Each correct response is allocated half mark**

1. The following are the pillars of Laboratory Quality Assurance (Quality Management System)?

a) Internal Quality Control activities (IQC) T or F
b) External Quality Assessment (EQA) T or F
c) Continuous Quality improvement T or F
d) Quality blood samples T or F

2. Concerning PIPT (PT):-

a) It measures the intrinsic pathway of coagulation T or F
b) It measures the extrinsic pathway of coagulation T or F
c) It monitors warfarin in therapy T or F
d) It measures Factors VII, X, V, II and I T or F

3. In Disseminated Intravascular Coagulation (DIC):-

a) ommon in trauma such as tissue rupturing T or F
b) Snakes venoms are involved T or F
c) Can be caused by infections T or F
d) APTT is the only diagnostic test T or F

4. Chronic Myeloid Leukaemia,

a) Usually shows massive splenomegaly T or F
b) All precursor cells are represented on blood film but predominant cells are mature neutrophils and myelocytes T or F
c) t(9:22) is present in more than 95% of cases T or F
d) PCR for BCR/ABL mutation is seen in all. T or F

5. The following are causes of Absolute polycythaemia

a) genetic abnormalities T or F

b) Abnormal erythropoietin production T or F

c) Hypoxia T or F

d) Severe burns T or F

6. Regarding normal haemopoiesis,

a) Pluripotent Stem Cell can self-renew and differentiate T or F

b) Haemopoietic cells, stromal cells and extracellular matrix form the bone marrow microenvironment T or F

c) G-CSF is growth factor which promotes differentiation and into neutrophil T or F

d) Precursor of platelets are called a myeloblasts T or F

7. In Aplastic anaemia:-

a) Caused by chemicals such as benzene T or F

b) All cells are depleted except platelets T or F

c) Best treated by blood transfusion T or F

d) Atomic bombs can be involved T or F

8. Concerning intrinsic haemolytic anaemia:-

a) Most are acquired T or F

b) Transfused Red cells are destroyed T or F

c) Alcoholism is one of the causes T or F

d) The defect is in the environment T or F

9. In Iron Deficiency Anaemia:-

a) Bleeding ulcers are involved T or F

b) It could be dietary T or F

c) Red cells are normochromic normocytic T or F

d) Total iron binding capacity is High/Raised T or F

10. Acute Lymphocytic Leukaemia (ALL):-

a) Associated with radiation T or F

b) Most common in children T or F

c) White blood cells involved are the T-cells T or F

d) Does not affect adults T or F

11. Examples of T-Lymphocytes are:-

a) Helper cells T or F

b) Cytotoxic cells T or F

c) Platelets T or F

d) Antibody producing cells T or F

12. The last erythroblast to divide is the:-

a) Basophilic normoblast T or F

b) Mature red blood cells T or F

c) Promonoblast T or F

d) Reticulocyte T or F

13. The following statements may not result in iron deficiency anaemia

a) Folate deficiency T or F

b) Rapid infant growth T or F

c) Chronic blood loss T or F

d) Pregnancy T or F

14. Haemopoesis is regulated by the following:-

a) Feedback rate regulating mechanism T or F

b) Leucopoietin T or F

c) Erythropoietin T or F

d) None of the above T or F

15. Concerning PNH (Pyroxysmal Nocturnal Haemoglobinuria):-

a) Red blood cell membrane is normal T or F

b) There is chronic intra-vascular haemolysis T or F

c) A rare acquired defect of marrow stem cells T or F

d) Red blood cell is rendered sensitive to lysis by complement T or F

16. Which of the following are helpful in diagnosing megaloblastic anaemia

a) hyper segmentation of monocytes T or F

b) Basophilic strippling T or F

c) Hypo segmentation of neutrophils T or F

d) MCV between 65 – 80ft T or F

17. Neutrophilia can result from which of the following?

a) Infection T or F

b) Tissue damage T or F

c) Bleeding T or F

d) Steroid therapy T or F

18. The following are features of Low grade non-Hodgkin's Lymphomas?

a) Insidious (slow) onset T or F

b) Small cells T or F

c) Immunohistochemistry is key to accurate diagnosis T or F

d) Incurable usually T or F

19. Concerning the Pyruvate Kinase (PK):-

a) Is the first enzyme in the Pentose phosphate pathway T or F

b) There is macrocytosis T or F

c) Involved in acquired haemolytic anaemia T or F

d) Deficiency is more common than G6PD T or F

20. Regarding coagulation (clotting) screen,

a) Basic clotting screen includes PT, APTT and platelet count. T or F

b) PT assesses the extrinsic pathway Factor V11. T or F

c) INR is derived from PT and is used for monitoring patients on warfarin. T or F

d) APTT is prolonged in deficiencies of intrinsic pathway factors VIII, IX, XI and XII T or F

SECTION B [20 Marks]

Answer all questions on separate answer sheets provided

1) A 40 year old man had Aplastic anaemia.
   a) List the possible causes. [3]
   b) What further tests do you recommend? [2]
2) A patient has microcytic hypochromic anaemia and you suspect iron. deficiency. List the alternative tests which can be used to confirm iron deficiency. [5]
3) Discuss the following terms
   a) Eosinophilia [2]
   b) Reticulocyte staining [3]
4) Give a brief account of haemophilia A. [5]

SECTION C [75 marks]

Answer any 3 questions from this section on separate answer sheets provided

1) Discuss the Classification of acute Leukaemias. [25]
2) Discuss the Acquired Haemolytic Anaemia. [25]
3) What do you understand on Hodgkin's Disease? [25]
4) With the aid of a diagram discuss briefly Intrinsic Coagulation Pathway. How is it diagnosed? [25]
5) What do you understand on Aplastic anaemia? Your answer to discuss areas like causes, pathogenesis, diagnosis, and treatment [25]