

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

NSLS407: HEMATOLOGY II

NOVEMBER, 2025

LECTURER: PROF. EMMANUEL OBEAGU

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): 20 MARKS

Instruction: Answer all questions by encircling the correct response T for TRUE or F for FALSE for each statement in all the questions

1. **Anemia is best defined as:**
 - a) Decrease in RBC count only **T or F**
 - b) Reduction in RBC, hemoglobin concentration or hematocrit below normal for age and sex **T or F**
 - c) Reduced oxygen supply irrespective of Hb levels **T or F**
 - d) Decrease in plasma volume **T or F**

2. **The most common global cause of anemia is:**
 - a) Vitamin B12 deficiency **T or F**
 - b) Iron deficiency **T or F**
 - c) Hemolytic anemia **T or F**
 - d) Aplastic anemia **T or F**

3. **Microcytic hypochromic anemia is most commonly due to:**
 - a) Folate deficiency **T or F**
 - b) Vitamin B12 deficiency **T or F**
 - c) Iron deficiency **T or F**
 - d) Aplastic anemia **T or F**

4. **Macrocytic anemia results mainly from:**
 - a) Iron deficiency **T or F**
 - b) Folate or Vitamin B12 deficiency **T or F**
 - c) Thalassemia **T or F**
 - d) Anemia of chronic disease **T or F**

5. **Normocytic normochromic anemia is typical of:**
 - a) Sickle cell disease **T or F**
 - b) Iron deficiency anemia **T or F**
 - c) Anemia of chronic disease **T or F**
 - d) Both (a and c) **T or F**

6. **Polycythemia is defined as:**
 - a) Increase in plasma volume **T or F**
 - b) Increase in total RBC mass above normal **T or F**

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- c) Decrease in hematocrit **T or F**
- d) Increase in WBC count **T or F**

- 7. **Primary polycythemia is also called:**
 - a) Polycythemia vera **T or F**
 - b) Secondary polycythemia **T or F**
 - c) Relative polycythemia **T or F**
 - d) Erythropoietin deficiency anemia **T or F**

- 8. **Secondary polycythemia is/are commonly due to:**
 - a) Dehydration **T or F**
 - b) Chronic hypoxia **T or F**
 - c) Bone marrow failure **T or F**
 - d) Aplastic anemia **T or F**

- 9. **Relative polycythemia results from:**
 - a) True increase in RBC mass **T or F**
 - b) Decrease in plasma volume **T or F**
 - c) Erythropoietin overproduction **T or F**
 - d) None of the above **T or F**

- 10. **Polycythemia vera is associated with mutation in:**
 - a) BCR-ABL **T or F**
 - b) JAK2 **T or F**
 - c) TP53 **T or F**
 - d) RAS **T or F**

- 11. **Laboratory finding in hemophilia A:**
 - a) Prolonged PT **T or F**
 - b) Prolonged aPTT, normal PT, normal platelets **T or F**
 - c) Pancytopenia **T or F**
 - d) Prolonged bleeding time only **T or F**

- 12. **Major clinical feature of thrombocytopenia is/are:**
 - a) Thrombosis **T or F**
 - b) Mucocutaneous bleeding, petechiae, purpura **T or F**
 - c) Hemolysis **T or F**
 - d) Splenomegaly only **T or F**

- 13. **Immune thrombocytopenic purpura (ITP) is caused by:**
 - a) Platelet production failure **T or F**
 - b) Autoantibodies destroying platelets **T or F**
 - c) Viral infection of marrow **T or F**
 - d) Vitamin K deficiency **T or F**

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14. Quantitative platelet disorders are mainly:

- a) Thrombocytopenia and thrombocytosis **T or F**
- b) Bernard-Soulier syndrome **T or F**
- c) Glanzmann thrombasthenia **T or F**
- d) Storage pool disease **T or F**

15. Qualitative platelet disorders involve:

- a) Abnormal platelet number **T or F**
- b) Abnormal platelet function **T or F**
- c) Increased clotting factor activity **T or F**
- d) None of the above **T or F**

16. Coagulation disorders are classified into:

- a) Factor deficiencies **T or F**
- b) Factor inhibitors **T or F**
- c) Abnormal fibrinolysis **T or F**
- d) All of the above **T or F**

17. Hemophilia A is due to deficiency of:

- a) Factor IX **T or F**
- b) Factor VIII **T or F**
- c) Factor XI **T or F**
- d) Factor VII **T or F**

18. Hemophilia B is due to deficiency of:

- a) Factor VIII **T or F**
- b) Factor IX **T or F**
- c) Factor VII **T or F**
- d) Factor X **T or F**

19. Von Willebrand disease is due to:

- a) Deficiency of vWF causing defective platelet adhesion and low factor VIII **T or F**
- b) Deficiency of GPIb **T or F**
- c) Factor VII deficiency **T or F**
- d) Thrombocytosis **T or F**

20. Mixing Study corrects prolonged aPTT in:

- a) Factor deficiency **T or F**
- b) Lupus anticoagulant **T or F**
- c) Factor inhibitors **T or F**
- d) None **T or F**

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SECTION B: 20 MARKS

Instruction: Answer all questions on separate answer sheets provided

1. List five (5) common causes of anemia 5 Marks
2. Differentiate between relative and absolute polycythemia 5 Marks
3. Name five (5) neoplastic causes of leukocytosis 5 Marks
4. Mention five (5) causes of thrombocytopenia 5 Marks

SECTION C: 60 MARKS

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

1. Give a detailed account of iron deficiency anemia **20 Marks**
2. Discuss the pathophysiological differences between primary and secondary polycythemia **20 Marks**
3. Describe Glanzmann Thrombasthenia and Bernard-Soulier syndrome **20 Marks**
4. Explain the pathophysiology, clinical features, and laboratory diagnosis of sickle cell anaemia **20 Marks**
5. Explain the laboratory tests used to investigate coagulation disorders, including PT, aPTT, TT, and Mixing Studies **20 Marks**

END