



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

(MAIN CAMPUS)

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

FIRST YEAR SECOND TRIMESTER EXAMINATIONS

**FOR THE DEGREE
OF
MASTERS OF SCIENCE IN MEDICAL HEMATOLOGY AND BLOOD
TRANSFUSION SCIENCES**

COURSE CODE: BMH821

**COURSE TITLE: CELLULAR AND THROMBOCYTIC
HEMATOPATHOLOGY**

DATE: 19/04/2022

TIME: 8.00 -11.00 AM

INSTRUCTIONS TO CANDIDATES

This paper has Long Answer Questions (LAQs). Answer 4 questions. **DO NOT WRITE ON THE QUESTION PAPER.**

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over

BMH 821: CELLULAR AND ERYTHROCYTIC HEMATOPATHOLOGY

Instructions: Answer question 1 and any other Three questions

1. A 45-year-old female phoned her physician and complained of fatigue, shortness of breath on exertion, and general malaise. She requested "B12 shots" to make her feel better. The physician asked the patient to schedule an appointment so that she could determine the cause of the symptoms before offering treatment. A point-of-care hemoglobin determination performed in the office was 9.0 g/dL. The physician then requested additional laboratory tests, including a CBC with a peripheral blood film examination and a reticulocyte count. (15Mks)

- i) Why did the physician want the patient to come to the office before she prescribed therapy?
- ii) How do the mean cell volume and reticulocyte count help determine the classification of the anemia?
- iii) Why is the examination of the peripheral blood film important in the investigation of an anemia?
- iv) Discuss the importance of the reticulocyte count in the evaluation of anemia.

2. Describe Etiology, Pathophysiology, clinical manifestation and laboratory investigations of each of the FIVE types of red blood cell enzymopathies (15Mks)

3. Describe the technique of flow cytometry, including specimen selection and preparation, principles and instrumentation, data collection and pattern recognition, and a design of an antibody panel(15Mks);

4. Describe the pathogenesis and systemic complications of sickle cell disease on the following (15Mks);

- a) Neurologic
- b) Renal
- c) Bone
- d) Cardiac
- e) Pulmonary

5. Discuss Hodgkin and Non-Hodgkin Lymphomas under the following; (15Mks)

- a) Etiology and risk factors
- b) Pathologic basis
- c) Laboratory diagnosis
- d) Clinical manifestation

6. a) Describe six roles of thrombin in hemostasis(6Mks)

b) Describe the properties of the vascular intima in the initiation and regulation of hemostasis and fibrinolysis (9Mks)