(*University of Choice*)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR

THIRD YEAR FIRST TRIMESTER EXAMINATIONS

FOR THE DEGREE
OF
BSc MEDICAL LABORATORY SCIENCES

COURSE CODE: **BMD 312**

MAIN EXAM

COURSE TITLE: **HEMATOLOGICAL TECHNIQUES II**

DATE: 10th December 2020 **TIME:** 2.00 -4.00 PM

INSTRUCTIONS TO CANDIDATES

This paper is divided into three sections, **A B** and **C,** carrying respectively: Multiple Choice questions (**MCQs**), short answer questions (**SAQs**) and long answer questions.

(**LAQs**)

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over.

SECTION A: MCQS

1. Micro haematocrite method requires
    a) A special reader
    b) Ordinary centrifuge
    c) Wintrobe tube
    d) Blood in citrate
2. Trisodium citrate anticoagulant in ESR is used at a ratio of:
    a) 1 to 9
    b) 1 to 2
    c) 1 to 5
    d) 1 to 4
3. The red cell dilution pipettes are graduated to give a dilution of:
    a) 1 to 20
    b) 1 to 210
    c) 1 to 100
    d) 1 to 200
4. The multiplying factor in manual red blood cell count is?
    a) 10,000
    b) 50
    c) 1,000
    d) 250
5. Reticulocytes have the following characteristics
    a) Have DNA particles remnants
    b) Contain normal Hb
    c) Are nucleated
    d) Are binucleated
6. What is the formula used to calculate MCH
    a) $\frac{Hb}{RBC} \times 10$
    b) $\frac{Hb}{RBC} \times 100$
    c) $\frac{PCV}{RBC} \times 100$
    d) $\frac{PCV}{RBC} \times 10$
7. ESR can be useful in the diagnosis of the following conditions
    a) Hook worm infection
    b) Osteomyelitis
    c) Ascaris infection
    d) Coronary artery disease
8. Thin blood film differs from thick blood film in that
    a) Thin film is not fixed before staining
    b) Thick film is fixed after staining
    c) Thin film is fixed before staining
    d) Thin film is reddish while thick film is greenish
9. The central square of the improved neubeur chamber has?
    a) 400 small squares
    b) 300 small squares
    c) 250 small squares
    d) 360 small squares
10. The following is **TRUE** for MCHC
    a) Low values are seen in megaloblastic anaemia
    b) Normal values is featured in sideroblastic anaemia
    c) Its values are 10^5 fraction
    d) Its formula is $\frac{HB}{}$

PCV

11. The following blood cell values are used in the classification of Anaemia
    a) PCV
    b) MCV
    c) Reticulocyte count
    d) Red blood cell count
12. A patient with platelets count of 60,000/mm^3 would have
    a) A normal platelet count
    b) Thrombocytopaenia
    c) Increased platelet count
    d) Thrombocytosis
13. Haemoglobin can be estimated using
    a) Potassium ferrocyanide
    b) Drabkins solution
    c) N/10 HCL
    d) Turks fluid
14. In blood film making one should?
    a) Use any slide available as a spreader
    b) Use grease free glass slide
    c) Not care much about the angle of spread
    d) Use a slide as a spreader
15. The following are white blood cell inclusions
    a) Dohle bodies
    b) Basophilic stippling
    c) Howell jolly bodies
    d) Nuclear lobes
16. Leishman stain is made of?
    a) 70% alcohol
    b) Eosin
    c) Glycerine
    d) Methylene blue
17. In hereditary spherocytosis, the MCV is
    a) Marked increased
    b) Moderately reduced
    c) Normal
    d) Mostly reduced
18. Variation in both size and shape of the red blood cells can be described as?
    a) Anisochromasia
    b) Anisocytosis
    c) Anisopoikilocytosis
    d) Poikilocytosis
19. The following term may be used to describe red cell immaturity
    a) Hypochromasia
    b) Erythroblastemia
    c) Erythrocytosis
    d) Schistocytosis
20. Which of the following parasites can be found in a blood film?
    a) Trichomonas
    b) Microfilaria
    c) Thrichomonas
    d) Schistosome

SECTION B: SAQs

1. With the aid of a diagram describe the various poikilocytes (10 marks)

2. Discuss 6 causes of an increased reticulocte count (6 marks)
3. Outline 10 sources of error which will affect the results of ESR (10 marks)
4. Describe capillary method of PCV to include the normal range (10 marks)
5. Describe at least 5 WBC abnormalities/ inclusion bodies (10 marks)
6. Describe MCV, MCH and MCHC (9 MARKS)
7. Outline 5 Romanowsky stains commonly used in Haematology lab (5 marks)

SECTION C: LAQs

1. Describe in details the Red blood cell inclusion bodies naming the conditions in which they are found. (20 marks)
2. Discuss in details the Manual Red blood cell counting technique to include:
    i) Requirements (5 marks)
    ii) Technique (10 marks)
    iii) calculation (5 marks)
3. Discuss Reticulocyte as follows:
    i) Definition (2 marks)
    ii) Principle of the test (2 marks)
    iii) Technique (10 marks)
    iv) Stains used (6 marks)