



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Applied and Health Sciences

DEPARTMENT OF MEDICAL SCIENCES

DIPLOMA IN MEDICAL LABORATORY SCIENCES
(DMLS)

AML 2301 : HAEMATOLOGY II

SPECIAL/SUPPLEMENTARY : EXAMINATIONS

SERIES: OCTOBER 2013

TIME: 2 HOURS

INSTRUCTIONS:

You should have the following for this examination

- *Answer booklet*

This paper consists of **TWO** sections.

Answer all questions in **Section A** and **B**. $\frac{1}{2}$ marks deducted for any wrong answer in **Section A**.

This paper consists of 9 PRINTED pages
SECTION A MCQ (40MARKS)

1. Spherocytosis is a condition whereby :
 - a) Rbcs show a marked increase in volume
 - b) Rbcs show marked hypochromasia
 - c) Indicates non deficiency
 - d) Rbcs assume a rounded shape
 - e) Presence of young Rbcs

2. Which of the following is an inclusion body found in wbc's
 - a) Howell jolly bodies
 - b) Heinz bodies
 - c) Dohle bodies
 - d) Spherocytes
 - e) Malaria parasites

3. Which of the following is a diluting fluids for platelets
 - a) New methylene blue
 - b) 1% ammonium oxalate
 - c) Crystal violet
 - d) Romanowsky stains
 - e) Turk's solution

4. Turk's solution is composed of
 - a) Gention violet
 - b) Sodium chrate

- c) Saponin
 - d) Baar's fluid
 - e) Methylene blue
5. Which among the following is the correct reference range in pcv estimation
- a) 40-52%
 - b) 20-30%
 - c) 45-60%
 - d) 38-54%
 - e) 2-6%
6. The following are haematological indices except
- a) MCV
 - b) PCV
 - c) Hb
 - d) MCHC
 - e) RDW
7. ESR estimation is used in
- a) Diagnosis of parasitic disease
 - b) To counter check Hb
 - c) Detect unknown organ disease
 - d) Diagnosis of leukemia
 - e) To follow progress of a malaria
8. Packed cell volume (PCN) values can be used in the calculation of :
- a) MCHC

- b) MCV
 - c) MCH
 - d) WBC absolute values
 - e) Relative values
9. The disadvantage of using the wintrobe method include
- a) Takes too much time
 - b) The tube is re-usable
 - c) It does not require sealing
 - d) Chances of breakages of tube are low
 - e) It is difficult to wash the tube
10. The microhaematocrit method if pcv
- a) Utilises a capillary tube
 - b) Utilises a wintrobe tube
 - c) Requires the use of a sealer
 - d) The tube used is closed on one end
 - e) Centrifugation time is 30 minutes
11. When the plasma appears icteric during performance of haematocrit
- a) Indicated excessive drug use
 - b) There may be massive destruction of rbc's
 - c) Indicate accumulation of lipids
 - d) Can be normal colour
 - e) Jaundice is present

12. The buffy coat

- a) Is a grey layer on top of red cells after centrifugation
- b) Contains rbc's and platelets
- c) Contains leucocytes and platelets
- d) Contains packed cells
- e) Is seen on young red cells

13. Normocytic normochromic anaemias include:

- a) Iron deficiency anaemia
- b) Acute blood loss
- c) Megaloblastic anaemia
- d) A steady state of haemolytic anaemia
- e) Dimorphic anaemia

14. Haematocrit is increased in the following conditions

- a) Aplastic anaemia
- b) Alpha thalassaemia
- c) Polycythaemia vera
- d) Cooley's anaemia
- e) Sideroblastic anaemia

15. The diluting fluids for platelets include as

- a) Baar's fluid
- b) Saponin
- c) 1% ammonium citrate

- d) Hayemis fluid
- e) Kristensons's fluid

16. Microcytic hypochromic anaemia can be caused by

- a) G6PD deficiency
- b) Haemaglobinuria
- c) Hook worm infection
- d) Excessive red cell haemolysis
- e) Cobalamin deficiency

17. Thin macrocytes are seen in the following condition

- a) Sickle cell disease
- b) Haemophilia A
- c) Von willerbands disease
- d) Alcoholism
- e) Defects of lipid metabolism

18. An elevated ESR is associated with

- a) Hypofibrinogenaemia
- b) Pregnancy
- c) Warm agglutinins
- d) Hypo albuminaemia
- e) Hyperval buminaemia

19. The equivalent of one pictogram is?

- a) 1.0×10^{-9} grams
- b) 1.0×10^{-6} grams
- c) 1.0×10^{-12} grams
- d) 1.0×10^{-15} gram
- e) 1.0×10^{-3} grams

20. MCHC is calculated using the following values

- a) Hb and PCV and given in g/dl
- b) Hb and PCV and given in %
- c) Hb and RBC count given in %
- d) PCV and RBC count and given in %
- e) Non of the above

21. In the peripheral blood film, A plastic anaemia is characterized by the following except?

- a) Low reticulocyte production index
- b) Bone marrow hypoplasia
- c) Reduced platelet count
- d) Thormbocytopenia and neutropenia
- e) None of the above

22. Packed cells volume (PCV) values may be used to confirm the following

- a) M.C.V
- b) Haemoglobin
- c) WBCs
- d) Platelets
- e) ESR

23. Relative polycythemia refers to the following

- a) Increased Red cells mass
- b) Decreased Red cells mass
- c) Increased plasma volume
- d) Decreased plasma volume
- e) None of the above

24. The decreased in Red cells mass is known as?

- a) Leukemia
- b) Polycythemia
- c) Anaemia
- d) Haemochromatosis
- e) None of the above

25. The following investigations may be used in the determination of iron lack anaemias except?

- a) Red cell radices
- b) Free erythrocyte protoporphyrin
- c) Serum non binding
- d) Folate studies
- e) All the above

26. Which of the following is a method for blood cell counting

- a) Colorimtric
- b) Electronic

- c) Sahili
 - d) Spencer
 - e) None of the above
27. The following may be observed in the PBT of severe untreated megaloblastic anaemia
- a) Hypersegmented neutrophils with above 6 lobes
 - b) Nucleus underdeveloped (nucleo – cytoplasmic asynchrony)
 - c) Cabot rings
 - d) Decreased red cell distribution width
 - e) None of the above
28. The following are morphological changes associated with anaemias of abnormal nuclear development except?
- a) Macrocytosis
 - b) Increased MCHC with normal MCH
 - c) Increased MCHC with normal MCH
 - d) Increased MCV
 - e) Decrease MCV
29. Succinyl CoA is converted from methylmalonyl CoA by the catabolism of propionic acid in the presence of?
- a) 2, 3 – DPG
 - b) Transcobalamin
 - c) Vitamin B₁₂
 - d) Tetra hydrofolate
 - e) Succinyl

30. The following statements are of rouleaux except
- a) Is prominent in multiple myeloma
 - b) May result in fast and increased ESR
 - c) Does not make it difficult to make satisfactory thin films
 - d) Spherocytic cells may form long chains of rouleaux
 - e) None of the above
31. The following statements are true regarding ESR
- a) May be normal in sickle cell anaemia
 - b) May be lowered by over-anticoagulation
 - c) Inadequate mixing does not constitute a major source of error
 - d) Normal levels for males is not 0 – 15mm/hr (westerggren)
 - e) All the above
32. Given that the total number of cells counted is 24 in each corner square and a dilution factor of 20; what is the WBC count
- a) 4.8×10^9 cells/ltr
 - b) 4.8×10^{11} cells /ltr
 - c) 4.8×10^{10} cells/ltr
 - d) 4.8×10^{12} cells/ltr
 - e) 4.8×10^6 cells/ltr
33. The following are RBC diluting fluid except
- a) Toisson's fluid
 - b) Hayens fluid
 - c) Formal citrate
 - d) Glacial acetic acid tinged with genuine violet
 - e) Gower's solution

34. A correction is necessary for WBC counts when nucleated RBCs are seen on the peripheral smear because

- a) The WBC count would be falsely lower
- b) The RBC count is too low
- c) Nucleated RBCs are
- d) Nucleated RBCs are confused with giant platelets
- e) None of the above

35. HbF is raised in;

- a) Thalassaemia major
- b) Thalassaemia minor
- c) Sickle cell trait
- d) Thalassaenuia

36. In westrgren ESR;-

- a) Wintrobe solution should be used
- b) Sodium citrate as anticoagulation must be used
- c) EDTA can be used as anticoagulant
- d) Normal values are smaller than those in wintrobe method
- e) The tube used is closed in one end

37. When reporting on red cells in a stained blood film one looks at;

- a) The nucleus
- b) The shape of the red cell
- c) The thickness of the cell
- d) The size of the cell

e) The number of the cells

38. Haemolytic anaemias are caused by

- a) Blood loss
- b) Faulty absorption
- c) Target cells
- d) Sickle cells
- e) Sperocytes

SECTION B ESSAY questions

- 1. Discuss on the full reporting of blood film **(20marks)**
- 2. Write short notes on
 - a) Nebaur chamber
 - b) Poikilocytosis
 - c) Turk's solution
 - d) Howell jolly bodies** **(20marks)**
- 3. a) Outline the ESR procedure by Westergren method **(10marks)**
b) List the laboratory investigation for haemoctic anaemia **(10marks)**