



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

**UNIVERSITY EXAMINATION FOR:**

**DIPLOMA IN MEDICAL LABORATORY SCIENCES**

**AML 2303 : HAEMATOLOGY III**

**END OF SEMESTER EXAMINATION**

**SERIES: AUGUST 2019**

**TIME: 2 HOURS**

**DATE: Pick Date Aug 2019**

## **Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of **TWO** Section(s). Attempt **ALL** questions.

**Circle the correct answer in section A.**

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## Section A

1. Tests for vascular system include the following
  - a. Prothrombin time
  - b. Partial thromboplastin time
  - c. Thrombin time
  - d. Hess's test
2. Contact activation leads to the following
  - a. Cleavage of plasma thromboplastin antecedent
  - b. Activation of the Hageman factor
  - c. Activation of high molecular weight kinninogen
  - d. Cleavage of kallikrein
3. Factors I, X, VIII and XIII belong to the?
  - a. Fibrinogen group
  - b. Prothrombin group
  - c. Contact group
  - d. Kinninogen group

4. The following procedure is not necessary when the quality control results are outside the expected range
  - a. Proper mixture and warmth of the sample
  - b. Correct entry of identification information
  - c. Ensure control material is not contaminated
  - d. Rerun of all previous samples
5. The translocation of chromosome 9 and 22 has been found to be highly specific for?
  - a. CML
  - b. ALL
  - c. CLL
  - d. Burkitt's
6. The end product of coagulation cascade results in the following
  - a. Fibrinogen converted to fibrin
  - b. Stable fibrin
  - c. Vascular constriction
  - d. Primary platelet plug
7. The following are processes that aid in the amplification of coagulation by thrombin except?
  - a. Activation of factor XIII
  - b. Activation of factor XII
  - c. Enhancement of factor V activity
  - d. Aggregation of platelets
8. Pseudo-Huët-Pelger bodies and Auer rods depict the following
  - a. Confirms that a leukemia is lymphocytic and acute
  - b. Confirms that a leukemia is lymphocytic and acute
  - c. May not signify type of leukemia
  - d. Helps in sub-classifying lymphoid leukemias
9. The initial response to injury by blood vessels is referred to as
  - a. Platelet response
  - b. Vascular response
  - c. Primary response
  - d. Secondary response
10. Alpha granules consist of the following specific proteins except
  - a. Platelet derived growth factor
  - b. Fibrinogen
  - c. Calcium
  - d. Von Willebrand factor
11. Foods rich in vitamin K include the following except?
  - a. Cereals
  - b. Cauliflower
  - c. Egg white
  - d. Egg Yolk

12. The following is true concerning the components of extrinsic system
- Prostacyclin promotes platelet aggregation
  - ADP inhibits aggregation
  - Thromboplastin degrades fibrin
  - Factor V and proconvertin activate factor X
13. The following are characteristics of the Bernard-Soulier syndrome except
- There is increased skin and mucous membrane bleeding
  - Normal platelet count
  - Dwarf platelets in the peripheral blood film
  - Giant platelets in the peripheral blood film
14. What is the assigned numeral for thromboplastin factor?
- XII
  - III
  - IV
  - X
15. The following is not a diagnostic feature of essential thrombocythemia
- Absence of the Philadelphia chromosome
  - Presence of stainable iron in bone marrow aspirates
  - Presence of Philadelphia chromosome
  - Megakaryocytic hyperplasia
16. The following is false concerning the characteristics of leukemia
- Occur in all age groups
  - Affect the bone marrow only
  - They are malignant disorders
  - May also affect the lymphatic system
17. Vitamin K inhibitors include the following except
- Warfarin
  - Dicoumarol
  - Oral anticoagulants
  - Protamine sulfate
18. The following are characteristics of vascular abnormalities except?
- Are only acquired
  - Presence of Petechiae
  - Always normal platelet counts
  - Diagnosis is always specific assay not exclusion
19. In leukaemia, crises refers to the following during the course of leukaemia
- Presence of immature abnormal cells in the marrow only
  - Absence of abnormal cells in peripheral circulation only
  - Absence or reduction of abnormal cells in marrow and related organs
  - None of the above is true

20. Primary platelet aggregation is dependent on the following factor
- Thrombomodulin
  - Thromboxane A<sub>2</sub>
  - Von Willebrands factor
  - Prothrombin
21. The following statements are true concerning myelofibrosis
- Result from polycythemia
  - Marrow hypoplasia
  - Marrow hyperplasia
  - There is no hepatomegaly
22. Which of the following is the initial vascular response to injury \_
- Vasodilation
  - Vasoconstriction
  - Diversion of lymph flow
  - Reduced blood flow to injury site
23. Components of fibrinolysis includes the following except?
- Plasminogen
  - Intrinsic Plasminogen activators
  - Platelet activators
  - Extrinsic plasminogen activators
24. The following is false concerning leukaemias
- Most conditions are fatal
  - The process is characterized by a loss of cell growth regulation
  - Most leukaemias are progressive
  - They are easily arrested and non-progressive conditions
25. The following is false concerning the activated partial thromboplastin time
- It is used in the evaluation of intrinsic factor pathway defects
  - Evaluates only factors VII, XIII and III
  - Can be used to monitor patients on therapy
  - Is the best method for evaluating extrinsic factors
26. In coagulation, Vitamin K dependent factors require the following for activation
- Magnesium
  - Calcium
  - Protein S
  - Cobalt
27. The following is true when there are circulating anticoagulants
- APTT is Normal
  - PT is Normal
  - Both APTT and PT are abnormal
  - PT is Normal while APTT is abnormal

28. Vascular damage purpura resulting from immune complex deposition is known as?
- Henoch-Schonlein purpura
  - Talangiectasia
  - Thrombotic thrombocytopenic purpura
  - Organ ischemia and renal failure purpura
29. The following is true concerning hairy cell leukaemia
- About 50% of all leukemias are of this category
  - Mostly affects females above 40yrs old
  - Affects mostly T-lymphocytes
  - They are chronic diseases of lymphoproliferation
30. The following is true concerning Bone marrow transplantation
- Use chemotherapy only to eliminate leukaemic cells
  - Volunteer marrow is used to replace diseased marrow
  - Patients own stem cells cannot be used
  - Complements patients haemopoietic stem cells
31. Factors I, X, VIII and XIII belong to the?
- Fibrinogen group
  - Prothrombin group
  - Contact group
  - Kininogen group
32. In evaluation of disorders of haemostasis, the following is not factored
- Family history
  - Skin colour
  - Patient history
  - Clinical findings
33. The following platelet aggregation states are irreversible
- Primary
  - Secondary
  - Tertiary
  - Vascular
34. The following technique is not used in preparation of bone marrow smears
- Thin film spread
  - Squash
  - Wedge technique
  - Cover slip technique
35. Laboratory evaluation of intrinsic system is by the following assay
- Activated partial thromboplastin time
  - Prothrombin time
  - Thrombin time
  - Prothrombin index

36. The following cytochemical tests maybe positive for the subgroup M7 in acute non-lymphoid leukemia
- Sudan black B
  - Peroxidase
  - Periodic acid Schiff
  - Acid phosphatase
37. Acute myeloid leukemia WHO classification include the following except
- AML with recurrent cytogenic translocation
  - AML with multi-lineage dysplasia
  - AML and myelodysplasia
  - AML with Philadelphia chromosome
38. Quality control methods include the following except?
- Assayed stabilized material
  - Standard runs
  - Assayed stabilized material
  - Unassayed stabilized materials
39. The condition in which platelets are defective functionally is referred to as?
- Thromboasthenia
  - Thrombocytosis
  - Thrombocytothemia
  - Thrombocytopenia
40. Normal clotting time for the thromboplastin time (APTT) method is?
- 5 – 11minutes
  - 20 – 40seconds
  - 30 – 60 minutes
  - 5 – 11 seconds

## Section B

41. Discuss the following

A. Bone marrow specimen collection and apparatus (10mks)

B. Intrinsic pathway of coagulation (10mks)

42.

a. Prothrombin time test (10mks)

b. Describe four types of cytological stains used in leukemia assays (10mks)

43. Discuss the following

a. Laboratory diagnosis of Acute Myeloid leukaemia (10mks)

b. Four types of leukemia as classified by the FAB system (10mks)