



**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 SCIENCE

AML 2303 : HAEMATOLOGY III

END OF SEMESTER EXAMINATION

**SERIES:** DECEMBER 2016

**TIME:** 2 HOURS

**DATE:** Pick Date Dec 2016

**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. The following statements are true concerning myelofibrosis
  - a. Result from polycythemia
  - b. Marrow hypoplasia
  - c. Marrow hyperplasia
  - d. There is no hepatomegaly
2. The functions of fibrinolysis include the following
  - a. Restriction of fibrin formation
  - b. Clot formation
  - c. Redirection of clot formation
  - d. Vessel blockage
3. Which of the following is the initial vascular response to injury \_
  - a. Vasodilation
  - b. Vasoconstriction
  - c. Diversion of lymph flow
  - d. Reduced blood flow to injury site

4. Haemostatic function of platelets include the following except?
  - a. Maintain vascular integrity
  - b. Precipitate secondary haemolysis
  - c. Fill endothelial gaps
  - d. Cofactor during activation of intrinsic factors
5. Components of fibrinolysis includes the following except?
  - a. Plasminogen
  - b. Intrinsic Plasminogen activators
  - c. Platelet activators
  - d. Extrinsic plasminogen activators
6. The following is the first common pathway factor to be activated
  - a. Stuart prower
  - b. Plasma thromboplastin antecedent
  - c. Fibrin stabilizing factor
  - d. Prothrombin
7. The following is false concerning leukaemias
  - a. Most conditions are fatal
  - b. The process is characterized by a loss of cell growth regulation
  - c. Most leukaemias are progressive
  - d. They are easily arrested and non progressive conditions
8. The following is not a myeloproliferative neoplasm
  - a. Agnogenic myeloid metaplasia
  - b. Myelofibrosis
  - c. Acute myeloid leukemias
  - d. Essential thrombocythemia
9. The following is false concerning the activated partial thromboplastin time
  - a. It is used in the evaluation of intrinsic factor pathway defects
  - b. Evaluates only factors VII, XIII and III
  - c. Can be used to monitor patients on therapy
  - d. Is the best method for evaluating extrinsic factors
10. The following is classification of leukemia based on cell maturity
  - a. Chronic
  - b. Dysplastic
  - c. Myelogenous
  - d. Myelofibrosis
11. In coagulation, Vitamin K dependent factors require the following for activation
  - a. Magnesium
  - b. Calcium
  - c. Protein S
  - d. Cobalt
12. FXIIa also activates the following fibrinolytic factor
  - a. Fibrin
  - b. Plasminogen

- c. Kininogen
  - d. Kallikrein
13. The following is true when there are circulating anticoagulants
- a. APTT is Normal
  - b. PT is Normal
  - c. Both APTT and PT are abnormal
  - d. PT is Normal while APTT is abnormal
14. Thrombocytosis maybe found in the following conditions
- a. Myelodysplastic syndromes
  - b. Iron deficiency anaemia
  - c. Lymphoma
  - d. Myelofibrosis
15. Vascular damage purpura resulting from immune complex deposition is known as?
- a. Henoch-Schonlein purpura
  - b. Talangiectasia
  - c. Thrombotic thrombocytopenic purpura
  - d. Organ ischemia and renal failure purpura
16. Which of the conditions is a common type of leukemia in children
- a. Acute myeloid
  - b. Acute lymphoid
  - c. Refractory anaemia
  - d. Myelodysplastic
17. The following is true concerning hairy cell leukaemia
- a. About 50% of all leukemias are of this category
  - b. Mostly affects females above 40yrs old
  - c. Affects mostly T-lymphocytes
  - d. They are chronic diseases of lymphoproliferation
18. Diagnostic studies of leukemia involve the following except
- a. Cytogenic
  - b. Familial
  - c. Racial
  - d. Bone marrow evaluation
19. The following is true concerning Bone marrow transplantation
- a. Use chemotherapy only to eliminate leukaemic cells
  - b. Volunteer marrow is used to replace diseased marrow
  - c. Patients own stem cells cannot be used
  - d. Complements patients haemopoietic stem cells
20. Mechanisms associated with malignant myeloproliferative disorders include the following
- a. Microorganism tRNA
  - b. Gene inversion
  - c. Chromosomal replication
  - d. None of the above
21. The condition in which platelets are defective quantitatively is referred to as?

- a. Thromboasthenia
  - b. Thrombocytosis
  - c. Thrombosis
  - d. None of the above
22. Factors I, X, VIII and XIII belong to the?
- a. Fibrinogen group
  - b. Prothrombin group
  - c. Contact group
  - d. Kininogen group
23. In evaluation of disorders of haemostasis, the following is not factored
- a. Family history
  - b. Skin colour
  - c. Patient history
  - d. Clinical findings
24. The following platelet factor is a precursor to thromboxane  $A_2$
- a. PF3
  - b. PF4
  - c. Arachidonic acid
  - d. Anti heparin
25. The following platelet aggregation states are irreversible
- a. Primary
  - b. Secondary
  - c. Tertiary
  - d. Vascular
26. Vitamin K dependent factors include the following except?
- a. Factor II
  - b. Protein C
  - c. Stuart prower
  - d. Factor I
27. The following technique is not used in preparation of bone marrow smears
- a. Thin film spread
  - b. Squash
  - c. Wedge technique
  - d. Cover slip technique
28. The following are unique properties of the vascular endothelial cell surface except?
- a. Inert to coagulation factors
  - b. Cells do not migrate through spaces between cells
  - c. There is minimal interaction with blood
  - d. Inert to platelet activity
29. Laboratory evaluation of intrinsic system is by the following assay
- a. Activated partial thromboplastin time
  - b. Prothrombin time
  - c. Thrombin time

- d. Prothrombin index
30. It is possible for the extrinsic system to activate the intrinsic system by?
- a. Action of TF-FVIIa-Calcium on F IX
  - b. Action of TF-FVIIa-Calcium on FXII
  - c. Action of FXIIa on TF-VII
  - d. Action of FIIa on FXI
31. The following cytochemical tests maybe positive for the subgroup M7 in acute non-lymphoid leukemia
- a. Sudan black B
  - b. Peroxidase
  - c. Periodic acid Schiff
  - d. Acid phosphatase
32. The following statements are true of acute leukemias
- a. There are fewer than 30% blasts in circulation
  - b. There are more than 50% blasts in circulation
  - c. Blasts consist only 10% - 30% of cells in the marrow
  - d. Acute leukemias are classified into M0-M7 and L1-L3 by French American British group.
33. Acute myeloid leukemia WHO classification include the following except
- a. AML with recurrent cytogenic translocation
  - b. AML with multi-lineage dysplasia
  - c. AML and myelodysplasia
  - d. AML with Philadelphia chromosome
34. Thrombin time test is a measure of the following
- a. The intrinsic pathway
  - b. The common pathway
  - c. The entire hemostatic process
  - d. The classical pathway
35. Quality control methods include the following except?
- a. Assayed stabilized material
  - b. Standard runs
  - c. Assayed stabilized material
  - d. Unassayed stabilized materials
36. At injury the first reaction towards achievement of haemostasis is?
- a. Platelet aggregation
  - b. Formation of fibrin
  - c. Vessel constriction
  - d. Contact activation
37. The condition in which platelets are defective functionally is referred to as?
- a. Thromboasthenia
  - b. Thrombocytosis
  - c. Thrombocytothemia
  - d. Thrombocytopenia
38. Paracoagulation may result from pathological states where?
- a. FDPs complex with fibrin monomers

- b. Soluble precipitates are formed by FDP and calcium ions
  - c. Fibrin is polymerized
  - d. Thrombin activity is impaired
39. Normal time in the thromoplastin time (APTT) method is?
- a. 5 – 11minutes
  - b. 20 – 40seconds
  - c. 30 – 60 minutes
  - d. 5 – 11 seconds
40. The citrate used in coagulation studies is normally at a ratio of
- a. 1part blood – 4parts citrate
  - b. 1part blood – 9parts citrate
  - c. 1part citrate – 4parts blood
  - d. 1part citrate – 9parts blood
41. Platelet granules contain the following
- a. Actin and myosin
  - b. Alpha granules
  - c. Beta granules
  - d. Delta granules

## Section B

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1. Describe the following
  - A. Acute myeloid leukaemia (10mks)
  - B. Prothrombin time test (10mks)
2. Discuss the following
  - A. Bone marrow specimen collection and apparatus (10mks)
  - B. Intrinsic pathway of coagulation (10mks)
3. Discuss the following anemias
  - a. Aplastic anaemia (10mks)
  - b. Describe four types of leukemia as classified by the FAB system (10mks)