



# Technical University of Mombasa

## Faculty of Applied and Health Sciences

DEPARTMENT OF MEDICAL SCIENCES  
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICAL  
LABORATORY SCIENCES  
BMLS12S –Mid

### AML 4321 : HAEMATOLOGY II

SPECIAL/SUPPLEMENTARY EXAMINATION

OCTOBER 2013 SERIES

2 HOURS

Instructions to candidates:

This paper consist of **TWO** sections A and B

**Section A** –Contains MCQS, any wrong response will be penalised. Answer **ALL** questions in **Section B**.

#### SECTION A – MCQs – (30marks)

1. Platelets which statement is false
  - a) Produced in the bone marrow by fragmentation of cytoplasm of megakaryocytes
  - b) Thrombopoietin is a major regular of platelet production
  - c) The pathway of blood coagulation is initiated by tissue factor on the cell surface
  - d) The immobilization of platelets at the sites of vascular injury requires adhesion to the vessel wall
  - e) Platelets are past of agranulocytes
2. Which of the substances below is correctly matched with its function?
  - a) Tissue factors causes fibrinolysis
  - b) Prostacyclin results in inhibition of blood coagulation
  - c) Von will brand factor causes platelet collagen adhesion
  - d) Antithrombin causes coagulation
  - e) Nitric oxide is a carrier of factor VIII

3. The following are causes of thrombocytopenia which is not:
  - a) Failure of platelet production due to bone marrow failure
  - b) Poor nutrition thus lack of vitamins microelements
  - c) Increased consumption of platelets due to infections
  - d) Dilutional loss due to massive transfusion of stored blood
  - e) Drug induced
  
4. Which statement is false regarding idiopathic thrombocytopenic purpura:
  - a) Acute ITP is most common in women of elderly age
  - b) Chronic ITP though idiopathic has been associated with disease such as SLE, HIV
  - c) There is usually presence of platelet auto antibodies. Which are usually tested for
  - d) It's the most common cause of thrombocytopenia without anemia or neutropenia
  - e) Treatment involves use of corticosteroids, intravenous immunoglobulin therapy.
  
5. Von Willebrand disease:
  - a) Has a sex linked inheritance pattern
  - b) Mucous membranes are a major site of haemorrhage
  - c) Platelet count tends to be decreased
  - d) The bleeding time is normal
  - e) The VWF is normal
  
6. The following are causes of Disseminated intravascular coagulation which is not.
  - a) Nutritional deficiency
  - b) Infections gram negative septicemia
  - c) Malignancy
  - d) Vascular abnormality
  - e) Widespread tissue damage
  
7. Which statement is true about graft versus host disease (GVHD)
  - a) Acute graft versus host disease is a disease syndrome that develops after day 100 of allogeneic stem cell transplantation
  - b) It is a genetic disease that results from a complex interaction between donor and recipient
  - c) There is also transfusion associated GVHD
  - d) The skin is hardly ever involved in GVHD
  - e) Laboratory tests are irrelevant in diagnosis of GVHD
  
8. Hodgkin's disease which is false
  - a) Reed-Sternberg cell is usually of T-cell origin
  - b) Epstein-Barr virus has been implicated in being a causative agent
  - c) Reed Sternberg cell is found in the diseased tissue
  - d) It has a peak in young adults
  - e) 60-70% present with cervical lymphadenopathy

9. Clinical staging for lymphomas is necessary which below is false about clinical staging
- Requires through clinical examination
  - Radiological investigations used are chest x – ray, CT scan of Thorax, abdomen, pelvis, PET scan.
  - WHO classification for lymphomas is based on clinical findings
  - Laboratory tests such as full blood count , liver function test
  - PET scans are used to monitor for recurrence or residual disease
10. Non Hodgkin's lymphoma
- More consistent clinical presentation and natural history than Hodgkin's lymphoma
  - Mostly T-cell origin
  - Many patients with nodal disease with little extranodal disease spread
  - There are indolent subtypes of non Hodgkin's
  - Non Hodgkin's has a good classification system
11. Clinical features of non Hodgkin's lymphomas includes the following except:
- Asymmetrical painless lymphadenopathy
  - Dermatitis
  - In 5-10% oropharyngeal involvement of Waldeyer's ring
  - Hepatosplenomegaly
  - B symptoms such as weight loss, fever
12. Which statement below is false
- Nodal non Hodgkin's lymphomas have a very aggressive course of disease
  - MALToma is a type of non Hodgkin's lymphoma
  - Extranodal lymphomas can arise in the stomach, thyroid, testis and lungs
  - AIDS is known to cause non Hodgkin's lymphoma
  - The high grade non Hodgkin lymphomas are rare
13. The following are some clinical features of Hodgkin's disease. Which is false
- Hodgkin's disease has a stable course
  - Hodgkin's disease has a high cure rate of 70-80%
  - Hodgkin's disease normally present as cervical nodes
  - Hodgkin's disease can present as a mediastinal mass with itching
  - Hodgkin's disease and a high extranodal presentation
14. The following have been implicated as aetiology of haemopoietic malignancy. Which is false
- Genetic diseases such as Down's syndrome
  - Nutritional deficiency
  - Radiation
  - Exposure to alkylating agents such as chlorambucil
  - Infections such as EBV

15. Which is true about acute leukiemia
- Acute leukemia have a indolent course of disease
  - The malignant transformation tends to occur in the mature cell
  - Its defined as the presence of over 20% of blast cells in blood or bone marrow
  - Increased apoptosis is thought to be one of key biochemical steps tube involved
  - There is no lymphoblastic cell involvement in acute leukemia
16. The following is false regarding specialized tests for acute myeloid leukemia (AML)
- Cytochemistry tests with Sudan bague is positive with presence of auer rods
  - Immunoglobulin tests can be carried out for diagnosis of AML
  - Immunological markers such as CD13, CD33 are positive for AML
  - Periodic acid-schiff test reveals coarse granules in AML
  - Mycloperoxidase is positive in AML
17. Which statement is true about chronic lymphoid leukemia
- There is considerable overlap with the lymphomas especially non Hodgkin's lymphoma
  - Cu is characterized by a chronic persistent neutropenia
  - They tend to be only of B-cell lineage
  - They are an aggressive form of leukemia
  - They have a good cure rate
18. Which statement is true regarding the laboratory findings of chronic lymphocytic leukemia
- There is an absolute neutroenia
  - Bone marrow aspiration shows lymphocytic replacement of normal marrow elements
  - With advanced disease there is an increase in the immunoglobulins
  - There are no autoantibodies noted
  - There is also no anemia
19. Myelodysplastic syndome which is false
- A group of clonal disorders of multipotent haemaopoietic stem cells characterized by increasing bone marrow failure with abnormalities of entire myeloid cell line
  - A hallmark of the disease is ineffectire haemapoiesis so that cytopenias accompany a marrow of normal or increased cellularity
  - There is tendency to progress to a leukemia
  - It can be secondary to chemotherapy or radiotherapy
  - Pathogenesis is dear cut which involves a law rate of apoplosis
20. The following are some of the peripheral blood features seen in myelodysplasad . which is not :
- Pancy topenia
  - Low retialocyte count
  - Macrocytic or dimorphic red blood cells
  - Granudocytes show lacks of granules
  - Platelets are unaffected

21. Causes of polycythenua include the following which is not a cause of polycythemia
- High altitude
  - Heavy cigarette smoking
  - Drawing
  - Malignancies e.g. hepatocellular carcinsma
  - Dehydration
22. Multiple myeloma which statement is false
- Is a nesplastic proliferation characterized by plasma cell accumulation in the bone marrow
  - It is characterized by monodonal proteins in serum or urine
  - Is a disease of infancy
  - There is usually presence of bone lesions
  - The serum free light chain ration is abnormal
23. The below are disease associated with m-proteins or paraproteins. Which is not :
- Multiple myeloma
  - Walden strom's macroglobulinaemia
  - Malignent lymphoma
  - Plasma cell leukemia
  - Myelofibrosis
24. Thallasemia which is a true statement
- It's a qualitative haemoglobinopathy
  - It affects multiple genes
  - It affects haem synthesis
  - The trait malifest with few or no symptoms
  - The  $\alpha$  thalassemia is more common in the Ascetic population
25. Porphyria: which is false
- Acute porphyria syndromes are characterized by dematological symptom
  - Porphyrias result from enzymatic defects along the haem production pathway
  - Urine porphyrin studies are mainstay of diagnosis of acute porphyria attack
  - There is an overall increase in urine levels of ALA and porphobililinogen
  - Erytwocyle uroporphycrinogen decarboxylene activity is a specific and intrinsic defect seen in some types of porphyrias
26. Following are acquired causes of hemolytic anemia which is not:
- Enzymopathies
  - Infections
  - Hyperspleism
  - Trauma
  - Drugs

27. Following are test to detect damaged or pathological red blood cell which is not
- a) Osmotic fragility test
  - b) Molecular mapping
  - c) Electrophoresis (Haemoglobin)
  - d) Sickling test
  - e) G6PD deficiency screening
28. Nutritional anemias : The following statement is true
- a) Iron deficiency anemia is seen as macrocytic cells in a peripheral blood film
  - b) Vitamin B<sub>12</sub> deficiency occurs commonly in the meat eating individuals
  - c) The red cell indices are increased in iron deficiency anemia
  - d) Vitamin B<sub>12</sub> deficiency is characterized by macrocytic cells
  - e) Vitamin B<sub>12</sub> deficiency cannot occur in gastric pathology
29. A plastic anemia the following are some of the causes which is not
- a) Ionizing radiation
  - b) Fantasies disorder
  - c) Trauma
  - d) Drugs such as chloramphenicol
  - e) Viruses hepatitis
30. Hemolytic disease of the newborn which is false
- a) Is due to red cell act immunization
  - b) IgG mediated
  - c) Anti-D antibody is responsible for the disease
  - d) Amniocentesis can sensitize a rhesus negative mother with a rhesus positive baby
  - e) The role of anti-D in non sensitized Rh-D- negative women is questionable

## SECTION B (ESSAY QUESTIONS)

1. (a) Discuss the Haemostatic response to injury and the coagulation cascade **(15marks)**  
(b) Classify hemoslytic anemias and write short notes on hereditary spherocylosis **(5marks)**
  
2. Discuss sickle cell disease **(20marks)**