



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

BACHELOR OF MEDICAL LABORATORY SCIENCE

AML 4312: BLOOD TRANSFUSION SCIENCE II

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date May 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.

1. Quality assurance in the blood bank should adhere to the following essentials except?
 - a. Organization and management
 - b. Resources
 - c. Facilities and safety
 - d. Dispatch and customer interventions
 - e. Process control
2. The following are true concerning manpower in the blood bank except
 - a. Personnel should be encouraged to attend CMEs
 - b. A quality manager is not an integral part of the team
 - c. Proficiency testing for all staff conducted at least once a year
 - d. All staff should have training on safety and biosafety
 - e. Safe handling and disposal of waste should be available to all staff
3. The following medical conditions may not jeopardize the safety of healthy donors
 - a. Pregnancy 6 months post full term delivery
 - b. Menstruation
 - c. Epilepsy
 - d. Allergic diseases
 - e. Alcohol

4. The following condition may necessitate a donor deferral for a period of one week
 - a. History of HIV
 - b. History of measles
 - c. History of Upper respiratory tract infections
 - d. Jaundice of unknown origin
 - e. History of HCV
5. The following is true concerning the volume of blood collected from a donor
 - a. Volume should not be proportionate to anticoagulant
 - b. A 30% variation is allowable but should not exceed 30mls/Kg of body weight
 - c. The volume collected must not exceed 500mls
 - d. Blood that exceeds the permitted range can be reduced and used normally
 - e. The tubing of the donor bag must be filled with anticoagulated blood and sealed
6. The following are good practices during donor blood collection except
 - a. Each container should be identified with numeric or an alpha numeric code
 - b. Documentation should be in such a way that blood is traceable to the donor
 - c. The segment number on the tubing must be recorded
 - d. Labelling of containers must be done at the time of donation
 - e. Labelling of blood containers is done at the processing stage in the blood bank
7. The following is true concerning Quarantine storage
 - a. Blood is held here before transfusion
 - b. Only blood that is non-reactive leaves quarantine storage
 - c. Reactive units are segregated in quarantine and marked for disposal
 - d. Biohazard labels should not be used for the quarantine area
 - e. Donor blood from previously seronegative persons do not need to be quarantined
8. To determine sterility of donated blood, the following should be done except?
 - a. Culture of blood from the tubing
 - b. Sterility checks on 1% of all donated blood
 - c. Blood from the main bag is drawn aseptically using a needle and cultured
 - d. Breached blood bags should not be used
 - e. All contaminated components of a unit must be discarded
9. The following statement is false concerning the use of platelets
 - a. 1% of all prepared platelets must be checked for bacterial contamination
 - b. Red Cell-Contaminated platelet concentrates must be discarded
 - c. Red Cell contaminated platelets can be used as group specific
 - d. Before use, concentrates must be checked for contamination
 - e. Storage before use should normally not exceed 5 days
10. The following is true concerning the use of granulocyte concentrates'
 - a. Should be stored for at least 48 hours
 - b. Storage temperatures of $4 \pm 2^{\circ}\text{C}$ should be maintained
 - c. Maximum storage period is 24hours
 - d. The granulocyte concentrate is about 1×10^6 cells
 - e. None of the above statements is true

11. The following is not a requirement of a good labelling system
- Traceability units
 - Appropriate handling of units
 - Appropriate retention of used blood
 - Appropriate selection of units for transfusion
 - Appropriate storage
12. The following is not an item required on the label of a unit of donor blood
- Product name
 - Date of donation
 - Donor name
 - Amount of anticoagulant
 - Expiry date
13. The appropriate color code scheme for differentiating ABO blood group labels is as follows. Which one is a mismatch?
- Blood group O – Blue
 - Blood group B – Pink
 - Blood group A – Yellow
 - Blood group B – Yellow
 - Blood group AB – White
14. The following should be adhered to during cytapheresis except?
- Taking Aspirin within 72hours are unsuitable for platelet apheresis
 - Family history of bleeding makes one suitable for platelet apheresis
 - A normal total and differential count is desirable before leukapheresis
 - Reinfusion of the Red Cells is encouraged in serial apheresis
 - A minimum interval of 48 hours between procedures should be observed
15. The inside temperature of a blood bank cooler is as follows
- $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$
 - $-4^{\circ}\text{C} \pm 2^{\circ}\text{C}$
 - $4^{\circ}\text{C} \pm 4^{\circ}\text{C}$
 - $-4^{\circ}\text{C} - 4^{\circ}\text{C}$
 - $4^{\circ}\text{C} - 10^{\circ}\text{C}$
16. The inside temperature of a platelet incubator should be?
- $-22^{\circ}\text{C} \pm 2^{\circ}\text{C}$
 - $-24^{\circ}\text{C} \pm 2^{\circ}\text{C}$
 - $24^{\circ}\text{C} \pm 34^{\circ}\text{C}$
 - $22^{\circ}\text{C} \pm 2^{\circ}\text{C}$
 - $4^{\circ}\text{C} - 10^{\circ}\text{C}$
17. Red Blood Cell components may be handled as follows
- Components in a closed system should have same expiry as whole blood
 - Additive solutions include ADSOL PLASMATEC and SAGM
 - In an open system, expiry date after separation of plasma is 24 hours
 - Red cells expire after 42 days when additive Solutions are used
 - Day zero is the day of separation

18. the following is false concerning the selection of blood for transfusion
- Recipients should receive ABO specific compatible whole blood or Red cells
 - Rh(D) Negative should receive Rh(D) negative blood
 - Rh(D) positive cannot receive Rh(D) Negative blood
 - Rh(D) positive blood can never be given to Rh(D) negative patients
 - In absence of ABO specific Blood, patients may receive O packed cells
19. The following best defines a massive transfusion
- Transfusion of large amounts of blood over a long period
 - Transfusing at least 12 units of blood during a course of treatment
 - Transfusing within 24hours an amount of blood exceeding recipients total blood volume
 - Transfusing all components of blood within 24hours
 - All of the above
20. Special considerations for neonatal transfusion include the following except?
- Donors may be screened for HbS
 - Mothers serum should be tested for unexpected/irregular antibodies
 - Childs serum is only used in the absence of mothers serum during crossmatch
 - Only Cell grouping is required
 - Whole blood should not be checked for clinically significant antibodies
21. The blood bank system used in Kenya is referred to as being?
- Centralized
 - Hybrid
 - Regional
 - Diffuse
 - Hospital based
22. Normally the flow of blood units in the Centre should be?
- Multidirectional
 - Unidirectional
 - Haphazard
 - Two-way
 - Unstructured
23. The following is not a consideration for the location of blood bank
- Staff amenities
 - Security
 - Major transport routes
 - Proximity to a hospital
 - Education and training of staff
24. Functional considerations for the processing area includes the following except?
- Separate male and female toilets
 - Quarantine storage
 - Component preparation ‘
 - Courier waiting area
 - Process managers office

25. The following is true concerning inventory and distribution area in the blood bank centre
- It is not concerned with dispatch of verified blood
 - Workload here is rarely 24/7
 - Should always be located at ground level
 - Should not be concerned with disposal
 - No storage is done here
26. Immune clearance of antigen antibody complexes occurs in the following sites
- Intramuscularly
 - Intravascularly
 - Intracranially
 - Extravascularly
 - Extramascular
27. The major cause of death as a result of the effects of adverse reaction is?
- Haemolytic disease of the new born
 - Acute hemolytic transfusion reaction
 - Extravascular reactions
 - Febrile reactions
 - None of the above
28. The following complement fixing IgG may result in intravascular reactions except?
- Anti-P^k
 - Anti-Jk^a
 - Anti-Xg^a
 - Anti-Vel
 - Anti-A
29. Media that may be used to suspend Red Blood Cells for elution include the following except
- 6% bovine serum albumin
 - Blood group O serum
 - Blood group AB serum
 - Normal saline
 - Low ionic strength saline
30. Technical factors that may impair elution include the following
- Incomplete washing of the cells
 - Storage changes to organic solvents
 - Complete removal of organic solvents
 - Dissociation of antibodies during elution
 - None of the above

Section B: Attempt all questions in this section

Question 31

- a. Discuss the role of Donor Panel Organizers in Blood Banking {5mks}
- b. Outline the estimation of Donor requirements (5mks)
- c. Describe the general guidelines for the appropriate use of blood and blood products (10mks)

Question 32

- a. Describe the process control layout (10mks)
- b. Describe the occurrence and diagnosis of transfusion related acute lung injury (TRALI) (10mks)