



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2011/2012
SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR
OF MEDICAL LABORATORY SCIENCE

HML 310: BLOOD TRANSFUSION II

DATE: Friday, 30th March, 2012

TIME: 2.00 p.m. – 4.00 p.m.

SECTION A: Answer All the Questions (5 marks each)

1. What is the clinical relevance of Human Leukocyte Antigens in blood transfusion? (5 marks)
2. Briefly describe the Alloimmune Neonatal Neutropenia (5 marks)
3. Outline the preparation of the following transfusion components:
 - a) Red Blood Cells Adenine Saline Added (2 marks)
 - b) Leukocytes Reduced - Red Blood Cells (3 marks)

SECTION B: Answer Only One Question

4. Describe the organization of blood transfusion services at the national level (20 marks).
5. Describe the side effects and hazards specifically associated with transfusion of components containing red blood cells (20 marks).

SECTION C: Answer All the Questions by Circling on the Correct Answer (1/2 mark each)

1. Platelet pheresis:
 - a) is collected from multiple donor
 - b) contains $< 3 \times 10^{10}$ platelets
 - c) is obtained from single donor
 - d) All of the above are correct
2. The first HLA antigen to be studied:
 - a) HLA-A2
 - b) HLA-A1
 - c) HLA-AA3
 - d) None of the above

3. Cryoprecipitated Antihemolytic Factor (AHF):
 - a) Is deficient of fibrinogen
 - b) contains fibronectin
 - c) lacks factor XIII
 - d) Is deficient of Von Willebrand Factor (vWF)
4. Which one of the following neutrophil specific antibodies causes graft failure in post-bone marrow transplant?
 - a) HNA-2a
 - b) HNA-3a
 - c) HNA-4a
 - d) HNA-1
5. Transfusion –Related Acute Lung Injury (TRALI) is mostly associated with:
 - a) Neutrophil antigens
 - b) HLA Class I Antigens
 - c) HLA Class II antigen
 - d) All the above
6. Which one of the following glycopeptides is not a HLA class I antigens
 - a) HLA-a
 - b) HLA-d
 - c) HLA-b
 - d) HLA-c
7. Throat tightness is associated with:
 - a) Anaphylactoid reactions
 - b) TRAIL
 - c) Transfusion Associated Circulatory Overload (TACO)
 - d) Febrile nonhemolytic reactions
8. HLA class I antigens are found:
 - a) on nucleated cells
 - b) in plasma
 - c) surface of platelet
 - d) ALL of the above
9. Which one of the following is not a clinical presentation associated with TACO?
 - a) Orthopnea
 - b) Tachycardia
 - c) Dyspnea
 - d) Nausea
10. Which one of the HLA antigen is the most polymorphic?
 - a) HLA-B
 - b) HLA-A
 - c) HLA-C
 - d) Both A and B

11. Platelet transfusion is considered in:
 - a) count greater than 10^5 / UL
 - b) congenital surface glycoprotein defects
 - c) heparin induced thrombocytopenia without life threatening hemorrhage
 - d) congenital platelet dysfunction
12. Which one of the following is not a HLA class 1 locus?
 - a) HLA-F
 - b) HLA-J
 - c) HLA-Q
 - d) HLA-L
13. The weight of HLA class 1 antigen glycopeptides heavy chain.
 - a) 45 Kd
 - b) 24.5 Kd
 - c) 52 Kd
 - d) 54 Kd
14. HNA-1a frequency is highest among:
 - a) Chinese
 - b) Koreans
 - c) Africans
 - d) Brazilians
15. Apheresis specific site effects and hazards includes:
 - a) fibrile nonhaemolytic reactions
 - b) alloimmunization
 - c) pulmonary reactions
 - d) All of the above
16. Thawed plasma
 - a) is derived from Fresh Frozen Plasma (FFP) or plasma frozen within 48hour
 - b) is prepared at $15-20^{\circ}\text{C}$
 - c) has shelf life of 4 days at $1 - 6^{\circ}\text{C}$
 - d) Is deficient of Factor II and fibrinogen
17. Which of the following HLA antigen is more frequent in Australian Aborigines than Chinese?
 - a) HLA-A 34
 - b) HLA-C 12
 - c) HLA-B 35
 - d) HLA-A 36
18. HLA class 1 molecules:
 - a) convey virally induced peptides to the cell surface
 - b) link T-cell reception of cytotoxic (CD8) T-cells
 - c) Both a and b
 - d) None of the above
19. Delayed Hemolytic reactions are associated with:
 - a) raised levels of lactate dehydrogenase
 - b) refractory pancytopenia
 - c) shock
 - d) rigors

20. The role of HLA class I antigens necessitating their presence in all human cells is?
- a) Identification of infected cells
 - b) Initiation of general immune response
 - c) Phagocytosis
 - d) Inflammation
21. Granulocyte pheresis contains:
- a) Leucocytes
 - b) Platelets
 - c) Red blood cells
 - d) All of the above
22. Which of the following loci is not normally expressed in nucleated cells?
- a) HLA-B
 - b) HLA DR
 - c) HLA-A
 - d) HLA-C
23. In Autoimmune Neutropenia of Childhood:
- a) antibodies are directed to HNA-1a
 - b) maternal IgG cross placenta
 - c) pregnant mothers are alloimmunized to neutrophil antigens
 - d) affects the first child
24. The cell surface glycopeptides antigens of the HLA –DR loci belongs to:
- a) HLA-class II
 - b) HLA-class -I
 - c) HLA –A
 - d) HLA-class III
25. Frozen red blood cells
- a) Are prepared by adding glycerol to whole blood before freezing
 - b) have shelf life of 48 hours
 - c) may be stored for up to 10years
 - d) All are correct
26. Which of the following loci does not normally present of viral origin?
- a) HLA-a
 - b) HLA-b
 - c) HLA-c
 - d) None of the above
27. HLA class II antigens are well distributed on:
- a) RBC
 - b) Platelets
 - c) B cells
 - d) None of the above
28. Expression of HLA class II on cells other than the normal cells occurs in:
- a) INF_γ stimulation
 - b) Acute graft diseases

- c) **a and b**
 - d) None of the above
29. Which of the following HLA loci present peptides from macrophage engulfed bacteria?
- a) HLA-DQ
 - b) HLA-A
 - c) HLA-C
 - d) HLA-B
30. In acute Hemolytic transfusion reaction:
- a) previously red cell alloimmunized patients are affected
 - b) Direct Antiglobulin Test (DAT) is negative
 - c) disseminated intravascular coagulopathy occurs
 - d) All the above are correct