



KENYATTA UNIVERSITY
EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
(MEDICAL LABORATORY SCIENCE)
HML 208: BLOOD TRANSFUSION

2ND SEMESTER 2022/2023

TIME: 2 HOURS

INSTRUCTIONS:

SECTION A: ANSWER ALL QUESTIONS: (4 MARKS EACH)

1. Highlight **four** characteristics of an ideal antisera (4 marks)
2. Give **four** reasons that may lead to discrepancies in D^u tests(4 marks)
3. Giving examples distinguish between direct antiglobulin test and indirect antiglobulin test (4 marks)
4. State **four** reasons that may lead to temporal deferral of blood donors (4 marks)
5. List**four** subtypes of blood group B(4 marks)

SECTION B: ANSWER ANY ONE QUESTION: (20 MARKS EACH)

6. Describe (a) the phases involved in the hemolysis of red blood cells (10 marks)
(b) the characteristics of immunoglobulin gamma (10 marks)
7. (a) Discuss the importance of performing controls in ABO blood grouping (10 marks)
(b) Describe FisherRacetheory on rhesus blood group system (10 marks)

SECTION C: ANSWER ALL QUESTIONS IN THE ANSWER BOOKLET: (1/2 MARK EACH)

1. Bombay blood group can be detected by:
 - a) Cell grouping
 - b) Cross matching
 - c) Serum grouping
 - d) Rh typing
2. What type of serological testing does the blood bank technologist perform when determining the blood group of a patient?
 - a) Genotyping
 - b) Phenotyping
 - c) Both genotyping and phenotyping
 - d) Polymerase chain reaction

3. Which of the following statements is true?
 - a) An individual with the *BO* genotype is homozygous for B antigen
 - b) An individual with the *BB* genotype is homozygous for B antigen
 - c) An individual with the *OO* genotype is heterozygous for O antigen
 - d) An individual with the *AB* phenotype is homozygous for A and B antigens
4. Which genotype(s) will give rise to the Bombay phenotype?
 - a) *HH* only
 - b) *HH* and *Hh*
 - c) *Hh* and *hh*
 - d) *hh* only
5. What blood type is not possible for an offspring of an *AO* and *BO* mating?
 - a) AB
 - b) A or B
 - c) O
 - d) All are possible
6. The alleged father of a child in a disputed case of paternity is blood group AB. The mother is group O and the child is group O. What type of exclusion is this?
 - a) Direct/primary/first order
 - b) Probability
 - c) Random
 - d) Indirect/secondary/second order
7. What blood type is not possible for an offspring of an *AO* and *BO* mating?
 - a) AB
 - b) A or B
 - c) O
 - d) All are possible
8. Which of the following describes the expression of most blood group antigens?
 - a) Dominant
 - b) Recessive
 - c) Codominant
 - d) Corecessive
9. Which of the following distinguishes A1 from A2 blood groups?
 - a) A2 antigen will not react with anti-A, A1 will react strongly (4+)
 - b) An A2 person may form anti-A1; an A1 person will not form anti-A1
 - c) An A1 person may form anti-A2, an A2 person will not form anti-A1
 - d) A2 antigen will not react with anti-A from a nonimmunized donor; A1 will react with any anti-A
10. A patient's serum is incompatible with O cells. The patient RBCs give a negative reaction to anti-H lectin. What is the most likely cause of these results?
 - a) The patient may be a subgroup of A
 - b) The patient may have an immunodeficiency
 - c) The patient may be a Bombay
 - d) The patient may have developed alloantibodies
11. What antibodies are formed by a Bombay individual?
 - a) Anti-A and anti-B

- b) Anti-H
 - c) Anti-A,B
 - d) Anti-A, B, and H
12. Which blood group has the *least* amount of H antigen?
- a) A1B
 - b) A2
 - c) B
 - d) A1
13. What type RBCs can be transfused to an A2 person with anti-A1?
- a) A only
 - b) A or O
 - c) B
 - d) AB
14. What should be done if all forward and reverse ABO results as well as the autocontrol are positive?
- a) Wash the cells with warm saline, autoadsorb the serum at 4°C
 - b) Retype the sample using a different lot number of reagents
 - c) Use polyclonal typing reagents
 - d) Report the sample as group AB
15. N-acetyl-D-galactosamine is the immunodominant carbohydrate that reacts with:
- a) *Arachishypogaea*
 - b) *Salvia sclarea*
 - c) *Dolichos biflorus*
 - d) *Ulexeuropaeus*
16. How is an individual with genotype *Dce/dce* classified?
- a) Rh positive
 - b) Rh negative
 - c) Rhnull
 - d) Total Rh
17. If a patient has a positive direct antiglobulin test, should you perform a weak D test on the cells?
- a) No, the cells are already coated with antibody
 - b) No, the cells are Rhnull
 - c) Yes, the immunoglobulin will not interfere with the test
 - d) Yes, Rh reagents are enhanced in protein media
18. Which genotype usually shows the strongest reaction with anti-D?
- a) *DCE/DCE*
 - b) *Dce/dCe*
 - c) *D-/D-*
 - d) *-CE/-ce*
19. A patient types as AB and appears to be Rh positive on slide typing. What additional tests should be performed for tube typing?
- a) Rh negative control
 - b) Direct antiglobulin test (DAT)
 - c) Low-protein Rh antisera
 - d) No additional testing is needed

20. Which antibody would not be detected by group O screening cells?

- a) Anti-N
- b) Anti-A1
- c) Anti-Dia
- d) Anti-k