



**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 SCIENCES

AML 2206 : BLOOD TRANSFUSION I

SPECIAL/ SUPPLIMENTARY EXAMINATIONS

**SERIES: SEPTEMBER 2018**

**TIME: 2 HOURS**

**DATE:** Pick Date Sep 2018

**Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, calculator, 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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1. The following is not a possible haplotype in the inheritance of Rh blood types
  - a. CDe
  - b. CDd
  - c. CdE
  - d. CDE
2. The following are corresponding shorthand genes designed by Fischer and Race
  - a. DCe = R<sub>1</sub>
  - b. DcE = R<sub>2</sub>
  - c. Dce = R<sub>0</sub>
  - d. DCE = r
3. Currently the internationally approved nomenclature has the following properties except?
  - a. Antigen specificity depicted by 6 digit number
  - b. Blood type is denoted by the first three numbers
  - c. Antigen numbers are given according to reactivity and discovery
  - d. The blood group specificity is denoted by 5 numbers

4. The following statement is correct concerning Rh antibodies
  - a. They are predominantly Natural antibodies
  - b. They are mostly IgM
  - c. They react best in saline
  - d. They are produced after sensitization
5. Adhesion and receptor molecules include antigens of the following except
  - a. Rh
  - b. Xg
  - c. Duffy
  - d. Lutheran
6. Complement regulation molecules include the following
  - a. ABO
  - b. Chido/Rodgers
  - c. Langeris
  - d. Junior
7. Clinical adverse events associated with Rh antibodies include the following
  - a. Febrile transfusion reactions
  - b. Hemolytic transfusion reactions
  - c. Circulatory overload
  - d. All of the above
8. The ABO blood group system genes are mapped on the following chromosome
  - a. 9
  - b. 10
  - c. 11
  - d. 21
9. The following are properties of ABO agglutinins except?
  - a. They tend to be IgM
  - b. They bind complement
  - c. They have a wide thermal range
  - d. They are cold agglutinins
10. Sources of anti-A include the following except
  - a. Dolichos bifloras
  - b. Helix pomatia
  - c. Ojala lacteal
  - d. Ulex europeus
11. Sources of anti-H include the following
  - a. Ulex europeus
  - b. Vicia craca
  - c. Helix etensis
  - d. Fomes formentarius
12. The following are false concerning naturally occurring antibodies except?
  - a. They act strongly at 37°C
  - b. They occur without any known antigen contact
  - c. Occur after stimulus

- d. None of these antibodies bind complement
13. The surface charge exerted by the RBC is known as \_\_\_\_\_?
- a. Ionic cloud
  - b. Surface of shear
  - c. Surface shear
  - d. Zeta potential
14. Potent cold autoagglutinins have the following specificity
- a. Anti-I
  - b. Donath-Landsteiner
  - c. Anti-P
  - d. Anti-D
15. The following statements is false concerning genes  $A_1$  and  $A_2$
- a. Gene  $A_1$  is dominant over gene  $A_2$
  - b. They are allelic
  - c. They are dominant over gene O
  - d. They are dominant over B
16. Antigenic determinants may function in the following ways
- a. As antigens only
  - b. As antibodies only
  - c. As transporters and channels
  - d. None of the above
17. Carbohydrate molecules associated with blood group systems include the following antigens
- a. Lewis
  - b. Kell
  - c. Colton
  - d. I
18. Blood group antibodies may occur due to?
- a. Viral infections
  - b. Specific antigenic stimulus
  - c. Hereditary acquisition
  - d. None of the above
19. The purpose of Immunohematology is to be able to?
- a. Detect untoward effects of blood donation
  - b. Explain the functions of blood group substances
  - c. Cure debilitating diseases
  - d. Restore breathing in faint patients
20. In order to keep with the spirit of blood donation, it is important that donors \_ \_ \_
- a. Are coerced into giving out blood
  - b. Give blood freely without undue stress
  - c. Are remunerated after giving blood
  - d. Give blood only to close relatives
21. The first blood group system to be discovered was the?
- a. Rh blood group system

- b. Lewis Blood group system
  - c. ABO blood group system
  - d. RBC blood group system
22. The red cell membrane is considered to be negatively charged due to?
- a. Sialic acid layer
  - b. Lactosylceramide layer
  - c. Carbohydrate antigens
  - d. Protein antigens
23. The direct gene product is?
- a. Protein
  - b. Glucose
  - c. Lipids
  - d. Vitamins
24. The following is an attribute of blood as recorded by ancient generations
- a. Blood is the life of the flesh
  - b. The soul contains the blood
  - c. Blood and soul are alive
  - d. Blood is a mystical creature
25. The following is true of ancient roman practices
- a. Blood baths were not used for spiritual restoration
  - b. Bloodletting was used for recuperation
  - c. They drank gladiators blood to cure epilepsy
  - d. Bloodletting was used as a source of self punishment
26. In 1492 it was alleged that pope innocent VIII was given blood from?
- a. Two 10-year old boys
  - b. Three 10-year old boys
  - c. Three 10-year old girls
  - d. Two 10-year old girls
27. The circulatory system was discovered by?
- a. Galen
  - b. Erasistratos
  - c. Harvey
  - d. Ancient Romans
28. To prove blood circulation, Wren and Boyle performed the following
- a. Injected intravenous opium
  - b. Performed blood transfusion
  - c. Performed blood donations
  - d. Injected wine
29. The first animal transfusion was performed by Lower on the following animal
- a. Goats
  - b. Cats
  - c. Dogs
  - d. Monkeys
30. In 1667, Mr. Arthur Coga was transfused with sheep blood. How much money was he offered

- a. 20 pence
  - b. 20pennies
  - c. 20 shillings
  - d. 20 dollars
31. Animal blood was favoured in the 15<sup>th</sup> century transfusion. Why?
- a. Moods were associated with blood
  - b. Animal blood had impurities
  - c. Human blood was had to obtain
  - d. There were too many animals
32. Dr. John Henry Leacock of Barbados proved that?
- a. Blood could be transfused inter-species
  - b. Blood could not be transfused intra-species
  - c. Blood could be transfused within species
  - d. Blood was safer when transfused within species
33. Blood group system ABO was independently discovered by the following except
- a. Dr. Moss
  - b. Jan Jansky
  - c. Dr. Richard Weil
  - d. Carl Landsteiner
34. The first physician to adopt a pre-transfusion grouping in 1907 was?
- a. Dr, Jean Baptiste
  - b. Dr. Richard Weil
  - c. Dr. John Henry Leacock
  - d. Dr. James Blundell
35. Dr. Reuben Ottenberg was able to establish the following?
- a. Transfusion reactions
  - b. Transfusion overload
  - c. Transfusion induced infections
  - d. Transfusion iron overload
36. In 1939, Levine and Stetson discovered the blood group currently referred to as the?
- a. Rh system
  - b. Rhesus System
  - c. MNSs system
  - d. Xg system
37. The use of citrates as successful anticoagulants for donated blood is credited to the following except?
- a. Dr. Weil
  - b. Dr. Lewihson
  - c. Dr. Loutit
  - d. Dr. Rous
38. The availability of blood for transfusion today is constrained by?
- a. Lack of surveillance of blood donors
  - b. Haemovigilance
  - c. High demand for zero risk during transfusion

- d. Disease in donated blood
- 39. Blood group system antigens may be inherited due to the presence of \_\_\_\_\_ genes
  - a. Non-linked genes
  - b. Mutated genes
  - c. Allelic genes
  - d. Linked genes
- 40. The Vaso-vagal attack may lead to the following condition during blood donation
  - a. Laryngismus
  - b. Tetany
  - c. Fainting
  - d. Hematoma

Section B

- 41.
  - a. Describe the inheritance of ABO blood grouping system 10mks
  - b. Inheritance of the Rh blood group system 10mks
- 42. Discuss the following
  - a. Rosenfield's numerical 10mks
  - b. Factors affecting antigen antibody binding 10mks
- 43. Discuss the following 4mks each
  - a. Bombay phenotype
  - b. Rh Null
  - c. Chimerism
  - d. Immune antibodies
  - e. Lectins