INSTRUCTIONS TO CANDIDATE

Time allowed is three (3) hours

Answers should be written in the answer book provided, writing on the right hand page only. The facing page may be used for rough work if desired

The examination consists of:
- 2 essay style questions; each question is worth 35 marks.
- 20 short answer questions; each question is worth 5 marks.

ALL QUESTIONS SHOULD BE ATTEMPTED

There will be an initial reading time of fifteen minutes, during which no writing will be permitted.
AIMS FELLOWSHIP EXAM
TRANSFUSION MODULE III
REFERENCE LABORATORY IMMUNOHAEMATOLOGY

SHORT ANSWER QUESTIONS

20 Questions - each question is worth 5 marks
All questions should be attempted

Q1. What is the Fischer–Race notation for the following Rh gene complexes:
   a. r_y
   b. R_z
   c. r'
   d. R_o
   e. r''

Q2. Which blood groups carry receptors for malarial parasites?

Q3. What are the criteria for antigens to be included in the 700 series and give two examples.

Q4. Briefly outline the serological and molecular distinctions between the A subgroups A_3, A_x, A_y, and A_el.

Q5. What are the minimum recommended methods to use for the detection of granulocyte antibodies?

Q6. Outline the mechanisms that produce the Rh null phenotype.

Q7. What are the ISBT criteria that must be met for an antigen to form a new blood group system?

Q8. List the population frequencies for the antigens in the HPA 1,3 and 5 platelet antigen systems.

Q9. List four types of acquired polyagglutination and the lectins that may be used to help differentiate them.
Q10. Outline the main features of the Cromer blood group system.

Q11. Briefly outline the serological properties of Knops antibodies including their reactivity with papain, DTT and trypsin treated cells.

Q12. Outline the principle of the MAIPA assay used for platelet antibody detection and identification.

Q13. What antigens other than Rh are absent or weakly expressed on Rh null cells.

Q14. To which blood group systems do the following antigens belong:
   a. \textit{Wr}^a
   b. \textit{Gy}^a
   c. \textit{He}
   d. \textit{Tc}
   e. \textit{Go}^a

Q15. How may dithiothreitol (DTT) be used in antigen-antibody investigations?

Q16. Briefly outline the nature of the Ch/Rg antigens and the serological properties of the corresponding antibodies.

Q17. Write brief notes on post transfusion purpura and implicated antibodies.

Q18. Which blood groups are assigned the following ISBT numbers:
   a. 003
   b. 005
   c. 008
   d. 011
   e. 013

Q19. What are the red cell features associated with McLeod syndrome and the clinical consequences?

Q20. Briefly outline the difference between weak Rh(D) and partial Rh(D) and the implications for routine Rh(D) typing.
ESSAY ANSWER QUESTIONS

2 Questions - each question is worth 35 marks
All questions should be attempted

Q1. Discuss the advantages and disadvantages of the available methods for investigating platelet specific antibodies. Include factors affecting the efficacy of the methods and evolving new technologies being applied to the detection and identification of platelet specific antibodies.

Q2. Describe the molecular genetic backgrounds and any clinical relevance for the null phenotypes of the Jk, Fy and Cr blood group systems.