Question 8: Which of the following statements is true?

A. The RhCE protein is encoded by the same gene as RhD protein.
B. The C antigen is the most immunogenic of the Rh antigens.
C. Anti-D causes intravascular hemolysis.
D. Partial D is a recombinant RhD-RhCE protein.
E. Anti-f is a rare compound alloantibody.

Question 9: Which of the following describes the Rh_null phenotype?

A. All Rh antigens are expressed on the red cell surface.
B. Red cells exhibit stomatocytosis.
C. Red cells display decreased osmotic fragility.
D. The phenotype is fairly common.
E. The cells demonstrate extended red cell survival.

Question 10: What is the main difference between “weak D” and “partial D” individuals?

A. Weak D phenotype results from a decreased number of epitopes on D antigen.
B. Partial D phenotype results from a decreased level of expression of D antigen.
C. Donors with weak D phenotype, but not partial D, should be categorized Rh-positive.
D. Donors with partial D phenotype, but not weak D, should be categorized Rh-positive.
E. Individuals with partial D phenotype, but not weak D, can make alloantibodies to the D antigen when receiving D-positive RBCs.

Question 11: Which statement is true about the compound Rh antigens, “ce” (also known as “f”), Ce, CE, and cE?

A. Compound antigens must be in cis configuration (on the same chromosome) to be expressed.
B. Antibodies to compound antigens are not clinically significant.
C. A recipient who has anti-ce should not receive blood from a donor who has the cE haplotype.
D. Compound antigens are the result of multiple amino acid polymorphisms.
E. Anti-c has been shown not to cause hemolytic transfusion reactions.

Question 12: Which statement about the G antigen is true?

A. It is found only on Rhnull red cells.
B. Anti-G does not react with red cells that express C and/or D antigens.
C. G antibodies may cause severe neonatal alloimmune thrombocytopenia.
D. Recipients with G antibodies should not receive C-negative or D-negative RBCs.
E. Current methods of antibody identification testing cannot distinguish anti-G from a mixture of anti-C and anti-D.

Question 13: Which statement about the Kell blood group system is true?

A. Consists of 10 antigens found on a single transmembrane protein.
B. K antigen is the most potent immunogen of the non-ABO antigens.
C. K antigen is present on 90% of donated red cells, so it can be difficult to find K antigen-negative RBC units.
D. Anti-K, -k, -Kp\textsuperscript{ab}, -Js\textsuperscript{ab} are typically immune-stimulated IgG antibodies detected by the antiglobulin test that have been associated with hemolytic transfusion reactions and HDFN.
E. Anti-K is an infrequent cause of HDFN.

Question 14: McLeod syndrome is caused by the absence of Kx antigen. In the absence of Kx antigen, levels of Kell antigens are greatly reduced on red cells and granulocytes. Which of the following is not associated with the McLeod syndrome?

A. Duchenne muscular dystrophy.
B. Chronic granulomatous disease.
C. Retinitis pigmentosa.
D. Stomatocytosis and decreased red cell production.
E. Acanthocytosis

Question 15: Which of the following is true about the Kidd blood group system?
A. The Jknull phenotype is seen predominantly in those of African ethnicity.
B. Kidd antibodies are complement-fixing IgG.
C. JKA is a dominant allele, while JKB is recessive.
D. Jknull phenotype red cells are lysed by 2M urea.
E. Only anti-Jk\(^a\) can cause hemolytic disease of the fetus and newborn.

**Question 16:** Which of the following is true about Kidd antibodies?

A. A positive history of Kidd antibodies is not clinically significant if there is no current evidence of Kidd antibodies.
B. Kidd antibodies are persistent and once detected in a patient they will be able to be detected from that point on.
C. Crossmatch alone is sufficient to identify units to transfuse to patients with Kidd antibodies.
D. Anti-Jk\(^a\) is clinically significant; anti-Jk\(^b\) is not.
E. Kidd antibodies can cause delayed hemolytic transfusion reactions.

**Question 17:** Which of the following about the Duffy blood group system is NOT true?

A. The Duffy carrier protein is a chemokine receptor.
B. Anti-Fy\(^b\) is more common than the anti-Fy\(^a\).
C. The Duffy carrier protein is the receptor for *P. vivax*.
D. Duffy antibodies can cause hemolytic transfusion reactions.
E. All of the above are true.

**ANSWERS**

**Question 1:** Which red cell antigen is correctly matched with one of its functions?

A. Duffy – *Plasmodium vivax* recognition site
B. Lewis – *Yersinia enterocolitica* recognition site.
C. P antigen – *Streptococcus aureus* recognition site.
D. Kell – *Trichomonas vaginalis* recognition site.
E. ABO – *Plasmodium falciparum* recognition site.

A. Duffy protein functions as a recognition site for *Plasmodium vivax*. 