P Questions:

1. **What are the 3 antigens and the 5 phenotypes of the P system?**

2. **The P genes code to make what type of proteins? What is the function of these proteins?**

3. **Which antigens does the P1 phenotype have?**

4. **When storing cells with the P1 antigen for a longer period of time, what happens to the antigen?**

5. **At what point in life is the P1 antigen fully developed?**

6. **Which phenotypes will produce an anti-P1?**

7. **Is anti-P1 an immune or naturally occurring antibody?**

8. **Is anti-P1 typically an IgM or IgG antibody?**

9. **At what temperature does anti-P1 react best?**

10. **Why is anti-P1 not a cause of HDFN?**

11. **Approximately what percentage of the population is positive for the P1 phenotype?**

12. **What substances can be used to neutralize P1 antibody?**

13. **The P2 phenotype lacks which antigen(s)?**

14. **Approximately what percentage of the population has the P2 phenotype?**

15. **If an individual inherits the P_1^k phenotype, what antigens do they form?**

16. **If an individual inherits the P_2^k phenotype, what antigens do they form?**

17. **What antibody could a P_1^k individual form?**

18. **If an individual inherits the p phenotype, what antigens do they form?**

19. **What antibody can an individual with the p phenotype form?**

20. **Can an anti-PP1Pk cause transfusion reactions and HDFN?**

21. **Which P system antibody is usually seen as an autoantibody?**

22. **Which antibody is the cause of Paroxysmal Cold Hemoglobinuria?**

23. **In what demographic is Paroxysmal Cold Hemoglobinuria usually seen?**

24. **Describe the process by which the autoantibody destroys red cells in Paroxysmal Cold Hemoglobinuria?**

25. **What is the recommended treatment for Paroxysmal Cold Hemoglobinuria?**

26. Describe how the Donath-Landsteiner test is performed.

27. What is the typical DAT reaction of a patient with Paroxysmal Cold Hemoglobinuria?

28. Individuals with which P system phenotypes will lack the Luke antigen?

29. Do the majority of people have the Luke antigen or lack the Luke antigen?