1. How many residues typically make up an antigen’s antibody-binding epitope? If the epitope is known, why don’t we use just a peptide as a vaccine to cut costs? (4 pts)

2. What makes prions different from other common pathogens? (2 pts)

3. What is the main difference between PrP$^C$ and PrP$^\text{Sc}$? (2 pts)

4. What causes Kuru and why did it mainly affect women and children? (4 pts)
5. Name 3 animals that contract transmissible spongiform encephalopathies that are eaten by humans. (3 pts)

6. What is the Vaccine Injury Compensation Program and why was it enacted? What are the 2 things required of people who administer vaccines? Where does the money come from to fund this program? (6 pts)

7. 3 lawsuits related to vaccines were discussed in class. What did these cases have in common? (2 pts)
8. Illustrate the differences between the primary and secondary immune responses (i.e. [antibody] vs. time, label your axes). List 5 properties and how they compare for the primary and secondary responses. (15 pts)

9. If you give a booster dose of a vaccine 2 weeks after the primary dose will it be effective? Two months after the primary dose? 2 years after the primary dose? Explain your answer in each case. (6 pts)
10. Why isn’t the MMR vaccine given to kids < 12 months of age? (2 pts)

11. What is active immunity and what are the two main ways in which this immunity is achieved? (4 pts)

12. What is passive immunization and what are the two most common forms of passive immunization? (4 pts)
13. A parent brings her young daughter to your pharmacy to fill a prescription for an ear infection. She wants to also bring her daughter up-to-date on her immunizations. Would the vaccinations be contraindicated at this visit? (2 pts)

14. What is a conjugate vaccine? (2 pts)

15. Why is it dangerous to give an intramuscular immunoglobulin prep intravenously? (2 pts)