Questionnaire on Surface Chemistry

Q1(a). Why does bleeding stops by rubbing moist alum?
(b). Why do we add alum to purify water ?
(c) . How does it become possible to cause artificial rain by spraying silver iodide on clouds?
(d). Why does leather gets hardened after tanning?

Q2(a). What happens when gelatine is mixed with gold sol?
(b). Why is gelatine, a peptide added to ice cream ?
(c). A colloid is formed by adding ferric chloride in excess of hot water. What will happen if excess sodium chloride is added to this colloid?
(d). The addition of ferric hydroxide sol to arsenic sulphide sol results in the precipitation of both.- Justify.

Q3(a). Do the vital functions of the body such as digestion gets affected during fever? Explain your answer.
(b). Why is it essential to wash the precipitate with water before estimating it quantitatively?

Q4(a).Dust particles become visible when a strong beam of light passes through a cinema hall . What will be your explanation for this phenomenon ?
(b). A bucket of turbid river water does not become clear even on standing for a long time. Why?
Q5(a). SnO_2 forms a positively charged colloidal sol in acidic medium and a negatively charged sol in basic medium. Explain.
(b). A sol of silver iodide can be positively or negatively charged. Explain.

Q6(a). Milk is an emulsion. Identify the dispersed phase and the emulsifier in milk.
(b).Explain the phenomenon of curdling of milk in the light of colloid chemistry.
(c). Explain the tail of comets in the light of colloidal chemistry.
(d) . 0.1M $AlCl_3$ is more effective than 0.1 M NaCl solution in coagulating an As_2S_3 solution while 0.1M $AlCl_3$ is less effective than 0.1M Na_3PO_4 in coagulating Fe_2O_3 sol. Explain.

Q7(a). What is salting out? How is it different from coagulation?
(b) . Physisorption and chemisorptions respond differently to rise in temperature. What is the difference and why is this so ? At constant pressure show the behaviour against temperature graphically.

Q8(a). Write the expression for Freundlich adsorption isotherm. Draw a graph to explain the relationship between the variables.
What are the limitations of this isotherm?
(b). In Dewar flask silica gel is placed between the walls of the flask . Why?

Q9(a). Name and explain the process involved in cleaning of clothes by soap.
(b). How can you get a colloidal solution of ice?

Q10(a). Which colloidal sol is administered to a patient suffering from arsenic poisoning?