



Your answers should be specific to the questions asked.  
Draw neat labeled diagrams wherever necessary. Answer all questions

**LONG ESSAY (Answer any TWO)****2 X 20 = 40 Marks**

1. a) Explain the various steps in quantitative analysis by gravimetric method  
b) Explain Volhard's and modified Volhard's method for the estimation of Halide by giving suitable examples from I.P.1996
2. a) Write the preparation, standardization and application of Karl-Fischer reagent  
b) Write a note on dropping mercury electrode
3. a) Discuss quality control of capsules  
b) Explain the quality control of baby care products

**SHORT ESSAY (Answer any FIVE)****5 X 10 = 50 Marks**

4. Explain the principle, construction and working of glass-membrane electrode
5. What are ligands? Explain the types of ligands with example and write the use of masking and demasking agents in the analysis of mixture of metal ions by complexometry
6. Write a note on safety for cosmetic products
7. Discuss principle and applications of high frequency titrations
8. Discuss principles and applications of non-aqueous titration
9. Explain the assay of any two compounds in IP 1996 done by redox titrations

**SHORT NOTES****2 X 5 = 10 Marks**

10. What are primary standards, give examples, what are the properties of an ideal primary standard?
11. Write the principle and reaction involved in the assay of Bisacodyl suppositories IP 1996

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