1. Define following terms
    i) Solubility
    ii) Saturated solution
    iii) Supersaturated solution
    iv) Unsaturated solution
2. How do you express solubility? Define them.
3. Give application of solubility in pharmacy.
4. What are the different factors which influence the solubility of solid in liquid?
5. Name two type of solubility curve with examples.
6. Describe the experimental method to determine solubility of substances in water.
7. Why a piece of filter paper is attached to the 10 ml pipette before pipetting benzoic acid solution from the beaker?
8. Draw the labelled diagram of pH meter and describe the parts
9. Write a Henderson-Hasselbalch equation.
10. Write the principle involved in the determination of pH of a solution.
11. Give the various methods to determine the pH of the solution.
12. Describe the factors influencing pH of a solution.
13. Explain Sorensen's pH scale.
14. How to maintain the pH meter?
15. What is the relation between pH and $[H^+]$?
16. What is pKa and Ka?
17. What do you mean by dissociation constant?
18. Name any four strong acid, strong base, weak acid and weak base.
19. How to determine pKa from half neutralization method?
20. Define Nerst law.
21. What is the limitation of determination of partition coefficient?
22. Enlist the factors affecting distribution coefficient.
23. Give the equation of partition coefficient for non-dissociable solute, dissociable solute and associable solute in one of the immiscible layers.
24. Give the application of Partition coefficient in Pharmacy.
25. What is log P value?
26. Change in volume of immiscible solvent or concentration of solute don't affect the partition coefficient value explain.
27. What is dimer?
28. Which solvent system more resemble with the physiology of body to carryout partition coefficient.
29. Define the following terms with examples
    A. Upper consolute temperature
    B. Lower consolute temperature
    C. Conjugate solution
    D. Tie line
    E. System having both upper and lower consolute temperature.
30. Explain CST of Phenol Water and Nicotine water system.
31. How you determine CST?
32. Give application of CST.
33. Why CST increases or decreases when a third substance is added? Explain with example.
34. What the principle involved in the determination of percent composition of an added substance using CST method. illustrate with suitable example.

35. What is complexation?
36. Give the classification of complex.
37. Give the application of complexation.
38. Write the principle involved in the analysis of complexes by solubility method using a suitable example.
39. Give the different parameters of complexes to be determined to evaluate complex.
40. Draw the solubility curve of PABA-Caffeine Complex and explain each part of curve.
41. Name the methods to analyze the complex.
42. What is ligand and metal ion which take part in complexation.
43. What is adsorption and absorption?
44. What is desorption.
45. What is difference between condensation and adsorption.
46. Distinguish between Physical and Chemical adsorption.
47. Factors affecting the degree of adsorption.
48. What is monolayer adsorption.
49. What is activated charcoal.
50. What is adsorption equilibrium.
51. What are the assumptions of Langmuir's adsorption isotherm?
52. Name the pharmaceutical adsorbent.
53. What is effect of temperature on adsorption process.
54. Name the adsorbent used in heavy metal poisoning.
55. What is the application of adsorption in pharmacy?
56. Give the formula of Freundlich and Langmuir adsorption isotherm.
57. What is surface and interface?
58. Define surface and interfacial tension.
59. What is cohesive and adhesive forces.
60. What is surfactant? Name any four surfactants.
61. Give the different type of surfactants.
62. What is the effect of temperature on surface tension?
63. Name the methods to determine surface and interfacial tension.
64. What is unit of surface tension and surface free energy?
65. What is full form of CMC and explain it.
66. How to determine fraction of drop in drop count method? Why it is needed in calculation of surface tension.
67. What is spreading coefficient and wetting property of liquid.
68. Name the dosage form where property of surface tension is utilized.
69. What is the full form of HLB?
70. Give the different methods to determine the HLB of surfactants.
71. Define saponification and acid number.
72. How to determine density of any liquid.
73. Give the principle of acid-base titration.
74. Name the scientist who discover pH and HLB scale.
75. Name the apparatus used in density and surface tension determination.