Compatible / Incompatible Prescriptions

Practice 33.1.

Caffeine		0.30 g
Sodium benzoate		0.30 g
Rathany syrup		15.00 g
Purified water	q.s.	50.00 g

Practice 33.2.

Caffeine		0.30 g
Sodium benzoate		0.30 g
Simple syrup		15.00 g
Purified water	q.s.	50.00 g

Questions:

1. How are these prescriptions prepared?

2. Which parts have attracted your attention in the preparation of both recipes? Explain the reasons.

3. Write down the purpose of each substance in the prescription.

Practice 33.3.

Atropine sulfate		0.20 g
Papaverine hydrochloride		0.80 g
Sodium bromide		1.00 g
Rathany syrup		5.00 g
Purified water	q.s.	30.00 g

Questions:

1. Explain the pharmacological effect of each substance in this prescription.

2. Explain the reasons for the incompatibility of the substances in the prescription.

Practice 33.4.

Papaverine hydrochloride		0.10 g
Luminal sodium		0.20 g
Sodium bromide		2.00 g
Purified water	q.s.	50.00 ml

Questions:

1. Explain the pharmacological effect of each substance in this prescription.

2. Explain the incompatibilities in this prescription with their reasons.

3. a) In this prescription at which pH does the papaverine hydrochloride begin to precipitate? Calculate.
   b) In this prescription at which pH does the luminal sodium begin to precipitate? Calculate.
   c) Evaluate the results and write down your idea about the state of dissolution of substances in the prescription.

Data:

Solubility of papaverine	:	0.02 g/l
pKa of papaverine	:	5.9
Molecular weight of papaverine	:	340
Molecular weight of papaverine hydrochloride	:	376
Solubility of luminal (phenobarbital)	:	0.9 g/l
pKa of luminal (phenobarbital)	:	7.4
Molecular weight of phenobarbital	:	232
Molecular weight of phenobarbital sodium	:	254

Practice 33.5.

Sodium phenobarbital		0.5 g
Ephedrine hydrochloride		1.0 g
Purified water	q.s.	30.0 ml

Questions:

1. Explain the pharmacological effect of the substances in the prescription.

   What is the prescription used for?

2. a) Explain the reasons for incompatibility in the prescription.
   b) In this medium at which pH do sodium phenobarbital and ephedrine hydrochloride begin to precipitate? Calculate.

3. How should this prescription be prepared and given to the patient?

Data:

Solubility of phenobarbital	:	0.9 g/l
pKa of phenobarbital	:	7.4
Molecular weight of phenobarbital	:	232.23
Molecular weight of phenobarbital sodium	:	254.22
Solubility of ephedrine	:	50.00 g/l
pKb of ephedrine	:	4.64
Molecular weight of ephedrine	:	165.23
Molecular weight of ephedrine hydrochloride	:	201.09

Practice 33.6.

Bismuth subnitrate	10 g
Sodium bicarbonate	5 g
Peppermint water	85 ml

If this prescription is prepared and immediately put into the bottle closing with a cork stopper, the stopper of the bottle will pop out after a few minutes. Explain the reason of this burst with chemical equations.

Practice 33.7.

Chloral hydrate	2 g
Sodium bromide	3 g
Garus elixir	100 ml

Practice 33.8.

Salicylic acid	3 g
Resorcin	3 g
Alcohol	100 g
Rosewater	200 g

Questions:

1. Write down the types and the reasons of the incompatibilities for these prescriptions.

2. How do you resolve the incompatibilities of these prescriptions?

Practice 33.9.

Menthol	1.25 g
Camphor	1.25 g
Phenol	0.80 g
Salicylic acid	1.80 g

Questions:

1. Describe the reactions in the formula above. What kind of reaction do the substances give together?

2. What should you do if you want to prepare the above formula as a chart?

Practice 33.10.

Zinc sulfate	4 g
Potassium sulfide	4 g
Purified water	100 ml

Questions:

1. What is the appearance of the solutions you prepared at first stage and after mixing?

2. Is there a change when the solutions of the two substances are brought together? What is the reason?

Practice 33.11.

Bismuth subnitrate	0.5 g
Sodium bicarbonate	0.5 g

Prepare 2 charts by mixing.

Questions:

1. What kind of changes have you seen in the charts you prepared after a one-month waiting period?

2. Would you give this prescription to your patient? Why?