

COMMITTEE REPORTS

REPORT OF THE COMMITTEE ON EXAMINATION QUESTIONS.*

The Committee has confined the work of this year largely to the consideration of questions. It has not been the object to present a large number, but to choose some which will illustrate some of the good points and some of the poor points and thereby suggest some things which we all may not have considered. The Committee has also tried to formulate some general statements which should govern every examiner in framing questions.

Questions which are asked by teachers are based on the instruction given, and in developing greater uniformity of the instruction there will be a greater uniformity of questions, and it was along this line that the Committee worked last year. In selecting the questions which follow it has been the desire of the Committee to consider questions which would be suitable for teachers and for boards.

In framing questions, the examiner on the Board of Pharmacy must always keep in mind the fact that applicants for registration have received their knowledge in different ways and from different sources; that the questions asked must be those which the applicant ought to know to be prepared to practice pharmacy. Occasionally we are forced to believe that the examiner has not given the attention and thought which he ought to have given in preparing them. He has forgotten the difference it makes to the applicant whether he passes or not; he has forgotten the importance of safeguarding the public in allowing an unprepared man to pass. I have known the same set of questions to be asked several times at short intervals.

GENERAL STATEMENTS.

1. Questions should not be ambiguous, but should be so clearly and distinctly worded that they cannot be misunderstood.
2. Questions should be of such a nature that they cannot be answered by "Yes" or "No," unless perhaps in an oral quiz.
3. Questions should be of such a nature that the examinee cannot ramble on without giving a definite answer. Commencing the questions with "Discuss" or "Tell all you know" is likely to bring out an indefinite answer. In answering such a question the applicant may feel certain that he has done credit to himself when in fact he may have missed the point entirely.
4. Quite a number of questions should be so worded that they will not involve memory effort alone; so worded that the person answering them must use some reasoning. The candidate usually survives better from reasoning, if such he can, than from "constantly trying to think" a memory answer, and the answer is rarely the result of pure guess work. Such questions may well begin with "Why."
5. Questions should be so worded that the answer shows a wider knowledge of the subject than the question on the face of it would indicate. For example, in answering the question "Why does Fowler's solution give a precipitate with solution of most alkaloidal salts?" the applicant must know what Fowler's solution is, its composition, its reaction to litmus, that the acid of the salt has a stronger affinity for the alkali than for the alkaloid, and that free alkaloids are sparingly soluble in water.
6. Some questions should deal as much as possible with broad generalities rather than with special phases of the subject.
7. Some credit should be allowed in grading an answer where it is partly right and partly wrong, *e. g.*, in a problem when the method is right and the answer wrong. The danger is that we are often inclined to give too much credit.
8. Questions involving mathematics should have all the data as to atomic weight, specific gravity, etc., included.

* Presented at joint session of Section on Education and Legislation, A. Ph. A., American Conference of Pharmaceutical Faculties, and National Association of Boards of Pharmacy, City of Washington meeting, 1920.

9. Catch questions should be avoided. However, a few persons contend that catch questions are a test of acuteness of mind and the pharmacist must have this acuteness in cases of emergency and therefore to a certain extent such questions are admissible.

The following statements apply more particularly to board examinations.

10. Questions prepared by different members of a board should be reviewed by one man for the purpose of eliminating duplicates and preventing one examiner from trespassing on another's subject. There should be no duplication, and no questions asked which are partially answered in other questions.

11. In states where there is no prerequisite law, it is entirely proper for the board to ask questions which the man who has not had a college training may not be expected to know, provided the question is one which every trained pharmacist should know.

12. Questions should cover a wide scope and not be along only a few lines.

13. Questions should avoid disputed or doubtful ground.

14. Questions on microscopical appearance of drugs should not be asked at the present stage of pharmaceutical education.

15. That questions on therapeutics should not be asked seems to be the opinion of the majority of the Committee who have discussed this point. Certainly the pharmacist should not use his knowledge of therapeutics for counter-prescribing. But a good knowledge of the general action and uses of drugs will make a better pharmacist. He can talk more intelligently with physicians, he will have a better appreciation and understanding of pharmacy, will be in better position to treat an emergency case of poisoning, and will enjoy his work more.

16. Questions on doses should be asked, whether average or maximum doses are called for. The pharmacist must be able to check the doses as given by the physician. It is a rather hotly disputed question whether average doses or usual maximum doses be taught and asked for. Those favoring the average dose claim that authority is established for such doses and that it is a safe rule to view with suspicion a dose that is more than twice that of the average dose. Those favoring the usual maximum dose claim that this dose is the one which should be remembered because it is the one beyond which it is not advisable for the dispenser to go without further knowledge. This Committee is not agreed.

17. Questions of bacteriology, disinfection, and biologic products should be asked.

18. Questions on commercial pharmacy should not be asked. Here, too, is some disagreement in the Committee. Some claim that a certificate of registration in a measure certifies to the man's qualification as a clerk, that a knowledge of advertising, book-keeping, salesmanship, etc., is as important as a knowledge of many of the processes of pharmaceutical manufacture. Other persons claim that the pharmacy laws are passed for the protection of the people and under these laws the boards are appointed to determine the competency of applicants to handle and dispense drugs, to test the purely professional knowledge of the applicant, and not his commercial knowledge.

19. A selection of a certain number of questions out of the set given (say ten out of twelve or fifteen) should not as a rule be allowed the applicant.

20. The larger the number of questions asked, the fairer is the examination. It is better to ask a large number of questions having comparatively short answers, than to ask a smaller number with long answers.

21. Questions on pharmaceutical arithmetic should be given in a separate set, because if distributed through the subjects of chemistry, pharmacy, or materia medica, the applicant may get a passing grade without knowing anything about problems. The solution of problems should not be dependent upon a knowledge of chemistry, pharmacy, or materia medica.

QUESTIONS WITH COMMENTS.

PHARMACY.

1. (a) Why is an excess of lime kept in the lime-water container? (b) Why is glycerin used in the first part of the menstruum only in making fluid extracts by "type process B"? (c) Why is potassium iodide used in making Lugol's solution? (d) Why is hypophosphorous acid used in making syrup of ferrous iodide?

Comment. This type of question is particularly good. Before the student can give a reason he must know considerable about the preparation.

2. (a) How much ethyl nitrite is there in spirit of nitrous ether? (b) What ingredients in the formula react to make ethyl nitrite? (c) Why is sodium carbonate used? (d) Why is potassium carbonate used? (e) Why does this preparation frequently effervesce with ammonium carbonate?

Comment. On the whole the question is a good one, but (b) might be worded better by asking for the chemical reactions which take place in making ethyl nitrite.

3. Tell all you know about adeps lanae and compare it with adeps lanae hydrosus.

Comment. To ask a person to tell all he knows on a subject is too indefinite and unsatisfactory and in place of the second part it would be better to ask for the essential differences between adeps lanae and adeps lanae hydrosus.

4. (a) Name the official substances obtained from petroleum. (b) What advantage has petrolatum over lard and other fats?

Comment. A part of the answer for (a) is given in (b). Such cases should be avoided.

5. Give the formula for Basham's mixture.

Comment. For common preparations it is well to ask for the ingredients, though not the amounts except it be for a very active agent. Possibly in a question like this too much stress is laid on the synonym for it cannot be answered unless the synonym is known.

6. (a) Give the process for making syrup of ferrous iodide. (b) Give the equation to show the reaction.

Comment. The general method of making such common preparations should be known, but not necessarily the details. Knowing the process will help to keep the reaction in mind and knowing the reaction will aid in remembering the process.

7. (a) What are mucilages? (b) Name those official.

Comment. Applicants should be able to define the different classes, but it is not necessary for them to remember which are official. Right here comes up the question as to what things are official. Does the examiner refer to U. S. P. articles or does he include the N. F.? Both are official under the Food and Drugs Law.

8. What is the official Latin name of (a) Hoffman's anodyne, (b) carron oil, (c) Goulard's extract, (d) Fowler's solution.

Comment. The pharmacist should know thoroughly all synonyms which he is likely to meet. The fact that he can place a preparation when it is called for under one of its synonyms increases the confidence of the patient or physician.

9. Give a type process for making a fluidextract.

Comment. It would be better to ask for the explanation of a type process.

10. Criticise the following prescription:

℞
 Corrosive sublimate..... gr. ij
 Potassium iodide..... dr. vj
 Tinct. chloride of iron..... oz. ss
 Tinct. nux vomica..... dr. ij
 Tinct. cinchona comp., q. s. ad..... oz. iv
 MS. Teaspoonful in water after meals.

Comment. When a criticism is asked for a student does not know how much to write. It would be better to put the question as follows: (a) Give all possible reactions and incompatibilities. (b) Give in detail the method and order of filling, or if you would not fill, give your reason. (c) Give the appearance of the finished prescription.

PHARMACEUTICAL ARITHMETIC.

1. (a) Convert the following into the metric system:

℞
 Quininae Sulph..... gr. xxiv
 Acidi Sulph. arom..... dr. ij
 Syr. Aurantii..... oz. ss
 Aquae q. s. ad..... oz. iv

(b) R̄

Quinae Sulph.....	4.0
Ferri phos. Sol.....	3.1
Strychninae Sulph.....	0.065
Arseni Triox.....	0.1
Elixiris arom., q. s. ad.....	250.0

2. (a) Boric acid is soluble in 18 parts of water: What is the percentage strength of a saturated solution? (b) How much 4% cocaine hydrochloride solution can be made from a $\frac{1}{8}$ oz. vial of cocaine hydrochloride?

3. Four fluidounces of a stock solution contain 120 grains of mercuric chloride. How many minims of this stock solution should be used in making one gallon of a solution 1:1000?

4. Compound spirit of ether contains:

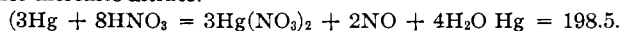
325 Cc. Ether, sp. gr. 0.715

650 Cc. Alcohol, sp. gr. 0.809

25 Cc. Ethereal oil, sp. gr. 0.905

What is the specific gravity of compound spirit of ether?

5. How many grammes of 68% nitric acid are required to convert 28 Gm. metallic mercury into mercuric nitrate?



H = 1 N = 14 O = 16.

6. A syrupy extract of nux vomica contains 45% moisture and 11% alkaloids; how much starch must be added to 1 lb. of the syrupy extract after it has been dried to make an extract containing 16% alkaloids?

CHEMISTRY.

1. Define chemistry, acids, bases, salts, basic salts, atom, molecule.

Comment. These definitions might well be omitted. They are so frequently asked that every one cramming for examination will memorize them, although he may have practically no knowledge of chemistry.

2. Hydrogen Dioxide. (a) Give the graphic formula. (b) Give the manufacture of the official solution. (c) With what is the commercial solution frequently preserved? (d) How is the strength determined?

Comment. Graphic formulas should not be asked for on board examinations. (b) and (d) should be replaced by questions which come more into the pharmacist's regular work.

3. Iodine. (a) What reactions take place in making the so-called colorless tincture of iodine? (b) What is formed when ammonia water is added to iodine? (c) What is the most delicate test for the detection of iodine in such a liquid as syrup of ferrous iodide?

Comment. (a) and (b) should not be asked in the same set of questions as (b) is included in (a). In (c) the examiner probably wanted the starch paste test but shaking with chloroform is also very delicate. In wording the question it would be better to replace the words "the most" by "a."

4. What reactions take place in making (a) Syrup ferrous iodide; (b) Spirit of Mindererus; (c) Labarraque's solution; (d) Compound cresol solution?

Comment. This is a good question, the application of chemistry to practical pharmacy.

5. Give the solubility in water and in alcohol of (a) Potassium iodide; (b) Mercuric chloride; (c) Potassium acetate; (d) Quinine sulphate; (e) Boric acid.

Comment. Pharmacists should know the approximate solubility of common salts, but not necessarily the exact figure.

6. How are the following assayed: (a) Ammonia; (b) Tincture of iodine; (c) Laudanum?

Comment. While the applicant should understand the principles embraced in assay processes and perhaps should know in general the method, he will rarely do the work, and there are so many other questions bearing more directly on the actual store work that it is not advisable for boards to ask for these methods. The answering correctly of such a question indicates that the applicant has had a good chemical training.

7. By what means can you tell the difference between: (a) Oxalic acid and Epsom salt; (b) Morphine sulphate and quinine sulphate; (c) Benzoic acid and salicylic acid?

Comment. The question is indefinite and should be changed to call for the differences in physical properties or in chemical tests.

8. Give tests for the identification of (a) Potassium iodide; (b) Calcium phosphate.

Comment. The advisability of asking such a question on a board examination seems to be disputed, some saying it is not fair, others saying that the applicant should know enough of chemistry to know the tests for the common simple salts.

9. (a) What is formaldehyde? (b) What is salol? (c) What is formed when an acid acts on a base?

Comment. Would "Formaldehyde is a liquid used as a germicide," "Salol is a white powder with a peculiar odor, that is prescribed by doctors as an intestinal antiseptic," "Water is formed when an acid acts on a base," be acceptable answers or answers which are deserving of any credit? Examiners generally say no.

10. (a) Why is a solution of mercuric chloride poured into lime water and not lime water into mercuric chloride solution in making yellow lotion? (b) Why is a solution of ferric sulphate poured into ammonia and not ammonia into ferric sulphate in making ferric hydroxide? (c) Why are ammonium carbonate and ammonia water allowed to stand together for twelve hours in making aromatic spirit of ammonia?

Comment. This is a good type of questions.

BOTANY.

1. Define the following terms: (a) Botany; (b) Phyllotaxy; (c) Phanerogams; (d) Cryptogams.

2. (a) How does a rhizome differ from a tuber? (b) How does a saprophytic differ from a parasitic root?

3. (a) What are stomata and what is their function? (b) How do glandular and non-glandular trichomes differ in appearance and function?

4. (a) What is a glabrous leaf? (b) A coriaceous leaf? (c) A punctate leaf? (d) What tissues enter into the structure of a leaf?

5. What is meant by (a) Sessile flower? (b) Deciduous tree? (c) Corm? (d) Dehiscent fruit?

Comment. In order to read descriptions of drugs intelligently, a knowledge of terms used is essential and boards should give the subject of botany more attention.

PHARMACOGNOSY.

1. Belladonna root. (a) Give natural order. (b) Give U. S. P. definition. (c) Describe the plant yielding it. (d) Write the macroscopical and microscopical description of it. (e) Name the active principles. (f) Give the habitat. (g) Name the adulterants.

Comment. (a) Natural orders should not be asked for on board examinations and it is a disputed question whether students in colleges should be required to get many of them. (c) The description of belladonna plant should not be required, as it is grown in only a few localities in the U. S. (d) Certainly the microscopic description should not be required and only macroscopical description of a few of the most common drugs. (g) The adulterants of a drug are continually changing and this information is of but little value to the retailer. The U. S. P. definition, the active principles and the general habitat should be known.

2. Give the Latin official names of (a) May apple; (b) Monk's hood; (c) Henbane; (d) Black haw; (e) Pink root.

Comment. Synonyms should be known.

3. Name the plants from which the following are obtained: (a) Emodin; (b) Punicine; (c) Eserine; (d) Sparteine; (e) Atropine.

Comment. A good question. Either the Latin or common name should be acceptable.

4. Name the important poisonous and medicinal plants of your state.

Comment. This is a test of the general information of the applicant.

THERAPEUTICS.

1. Define (a) Materia medica; (b) Mydriatic; (c) Idiosyncrasy; (d) Synergist; (e) Diaphoretic; (f) Soporific.

Comment. The definition of the classes of medicines should be known. The examiner must keep in mind the fact that *materia* is used in the broad sense to include all we know about medicines and in the limited sense as being synonymous with pharmacognosy.

2. Give the classes to which the following belong, from a therapeutic standpoint: (a) Santonin; (b) Pilocarpine; (c) Sodium phosphate; (d) Strophanthin; (e) Hydrastis.

Comment. Pharmacists should know the principal classes at least.

3. Give the therapeutic action and uses of: (a) Chloral hydrate; (b) Arsenic trioxide; (c) Digitalis.

Comment. See General Statement No. 15.

4. Name (a) Three vegetable cathartics; (b) Four diuretics; (c) Four antiseptics; (d) Drugs obtained from *Sus scrofa*.

5. Which of the following are hypnotics, which anthelmintics, which irritants: (a) Aspidium; (b) Mustard; (c) Iodine; (d) Santonin; (e) Potassium bromide; (f) Sulphonal?

Comment. Both questions 4 and 5 are good.

POSOLOGY AND TOXICOLOGY.

1. Define (a) Toxicology; (b) Lethal; (c) Poison.

Comment. The examiner is bound to accept almost any definition of a poison even when it is a long way from an accurate one. It would be better to leave it out.

2. Give the dose of (a) Confection of senna; (b) Pancreatin; (c) Potassium acetate; (d) Fluidextract of dandelion.

Comment. No valuable information regarding the applicant's knowledge is brought out. It is better to ask the doses of potent agents.

3. Give the average dose of (a) Atropine sulphate; (b) Strychnine sulphate; (c) Phenol; (d) Cocaine hydrochloride; (e) Aconitine.

Comment. See General Statement No. 15.

4. Name a physiological antidote for (a) Belladonna; (b) Aconite; (c) Physostigmine.

Comment. While pharmacists should be well posted on antidotes, not many would be able to name physiologic antidotes.

5. Give the treatment of poisoning by (a) Strychnine; (b) Phenol; (c) Morphine.

Comment. The treatment should be given "in full." There is always some excitement in a case of poisoning and the pharmacist should know so thoroughly what to do that he will not lose his head and will make use of what may be at hand. The mentioning of one antidote should not be sufficient on an examination.

PHARMACOLOGY.

BIOLOGIC ASSAYING.

1. Explain the difference between assaying and standardization. Define physiological standardization.

2. Can standardized tinctures or fluidextracts be made from standardized drugs? Give reasons for your answer.

3. Why is it necessary to physiologically standardize some drugs and not others? How are most drugs and chemicals standardized?

4. Give three principal *type* methods available for biologic standardization.

5. Describe the action of the digitalis group upon the frog's heart; upon the blood pressure.

Comment. Questions on biologic assaying are more advanced than most applicants for registration can stand, but we will probably come to them.

BACTERIOLOGY AND IMMUNOLOGY.

1. Sterilization: Name and describe each way in which it may be accomplished.

Comment. This would read better "Sterilization: Name and describe several ways in which it may be accomplished."

2. Describe in full how a room may be disinfected by formaldehyde; by sulphur.

3. Describe in full how agar culture medium is made (substances used, neutralization, filtering, tubing, and sterilizing).

4. What rôle do insects play in the transmission of disease? Name two diseases transmitted by mosquitoes.

5. What is an antigen? an antibody? Distinguish between antitoxic, lytic, and phagocytic immunity.

6. Diphtheria antitoxin: How is it prepared? What is the standard antitoxin unit? What is the U. S. P. dose? Can this safely be exceeded?

Comment. Every board ought to have some questions on bacteriology and immunization because of the importance of these subjects.

LEGAL PHARMACY.

1. (a) What qualifications are required under the laws of your state for license to practice pharmacy? (b) If there are two grades of licentiates, what is the scope or limitation of each?

2. (a) What authorities are recognized by the U. S. Government in determining the standard of quality and purity of drugs and medicines? (b) In case a drug or preparation departs from the legal standard, under what conditions may it be sold?

3. What is the implied contract under which every pharmacist practices his profession?

4. What inspectors may a pharmacist expect to visit him, and what law or laws may each be engaged in enforcing?

5. (a) What is the purpose of the "Harrison Act"? (b) What drugs are affected by it? (c) What are pharmacists required to do under this act?

Comment. Students should receive a thorough drill on laws pertaining to pharmacy, and boards should ask questions on them.

COMMERCIAL PHARMACY.

1. Do you estimate profits on cost or selling price? State your reasons.

The original contained a series of questions on the subject.

Committee	{	E. A. RUDDIMAN, <i>Chairman</i> ,	P. S. PITTENGER,
		C. A. DYE,	E. D. DAVY,
		CHAS. O. LEE,	C. W. JOHNSON,
		E. L. NEWCOMB,	G. J. BEARD,
		E. N. GATHERCOAL,	DANIEL BASE,
		A. H. CLARK.	

COLORS AS CURATIVES.

At a recent meeting of the Allied Medical Associations of America in New York City, a member explained how colors operate in restoring health; he said that drugs function by disengaging the colors composing them into the body. Thus a person suffering from malarial fever takes quinine; the blue wave of which the latter is composed, he said, "drives out the fever and cures the patient."

A daily paper comments thereon:—

"It is perhaps fitting that it was at a gathering of 'medical men' where it was calmly reported that vivisection had yielded no results and that the color cure was advanced as a specific for sick humanity. That a few primary facts as to the value of sunlight as an agency of health should take on the form of folderol that gives high curative and emotional values to the colors of the spectrum is only another indication of the kind of thing done by folk who rush in where angels fear to tread.

"That in this day of exact science the effect of quinine on the malarial parasite is described as the action of 'blue waves which drive the fever out and cure the patient' would seem to be incredible were the dispenser of this color nostrum not seemingly proud of his work. The account of the color cure, indeed, reads like a description of medicine as practiced on the upper Yang-tse-Kiang or in the desert of Gobi, to which secluded place Madame Blavatski cautiously retired her theosophic mahatmas. But the pity of it is that with the triumphs of preventive medicine never so considerable, with surgery daring ever to overcome new impossibilities, a certain kind of medical foolery is apparently enjoyed by the public. After all, Barnum did tell the truth."

NEW ORLEANS, THE CONVENTION CITY OF THE AMERICAN PHARMACEUTICAL ASSOCIATION FOR 1921—WEEK OF SEPTEMBER 5.

What lends New Orleans its charm? What makes it more popular among delegates to conventions than any convention city in America? Why is it that visitors to the quaint, yet modern city near the Gulf, can never completely forget its charm; can never quite get the desire to return out of their blood?

The answer to these questions is contained in three words. New Orleans is unique.

It is unique because of its historical interest—because of its many time-worn, old-fashioned, low-storied buildings, with their historical associations.

It is unique because of the charm of its people, in many of whom the spirit of hospitality, for which New Orleans and the South are famed, still survives.

It is unique because its thermometers never go above a hundred degrees nor under twenty.

It is unique because of the superlativeness of its cuisine, and the excellency of its accommodations for visitors.

The visitor to New Orleans has first of all the "French Quarter" so-called, although it is the section of the city developed under French and Spanish régime. This is a never-ending series of wonders for the inquisitive traveler.

Imagine yourself in the center of one of the most modern and progressive cities in the country, yet within walking distance of the Old Absinthe House, from which the pirate Lafitte issued orders which were as dreaded in New Orleans as they were on the shores of Bayou Barataria.

There is the "Haunted House" where Madame Lalurie entertained Lafayette on one floor, while on the floor above, she had her slaves chained and undergoing a process of torture. Her house was later burned by an angry mob, but it is commonly believed that the sobs of her black victims still reverberate through the halls of the structure that was raised on its site, and that chains rattle at midnight.

There is Jackson Square, formerly known as the "Place d'Arms," where everything in old New Orleans began and ended. It was here that the domination of Spain ended, to give way to beloved French rule. It was here that criminals underwent unspeakable torture, being nailed alive in their coffins and sawed in two.

Surrounding Jackson Square, there is the Cabildo, built by Don Andres Almonaster y Roxas in the latter part of the eighteenth century, as a legislative assembly for Spanish "regidors," and now the resting place for the priceless collection of relics of Louisiana history which the Louisiana Museum has committed to its care.

Then there is the Cathedral of St. Louis, just next to the Cabildo, on which Don Almonaster spent \$50,000, and asked that mass be said for him every Saturday afternoon.

On each side of and facing Jackson Square, there are the Pontalba buildings, which were frequented by all that was best in New Orleans society. They were erected in 1849 by Michaela Leonardo, Baroness de Pontalba, the only child of Don Almonaster. Until recently, they were occupied chiefly by Italians and Syrians. A few months ago a movement was launched in New Orleans to make the Pontalba buildings the art colony of the city, and it is believed that in a short time the buildings will be given over almost entirely to artists' studios.

 LIQUID IODOFORM.

The *Chemist and Druggist* reprints a Spanish formula for liquid iodoform as follows:

Potassium hydroxide.....	70 Gm.
Distilled water.....	50 Gm.
Alcohol (90%).....	70 Gm.
Oleic acid.....	100 Gm.
Iodine.....	60 Gm.

The potassium hydroxide is dissolved in the

water, and the oleic acid and alcohol added; then the finely powdered iodine is gradually added to the mixture in small quantities. At the conclusion of the reaction the liquid has a light brown color; it is allowed to stand for a few days in the dark, when the supernatant liquid portion is poured off. This is light yellow in color, and soluble in water, ether, chloroform, and fatty oils.