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Review of Pharmacy

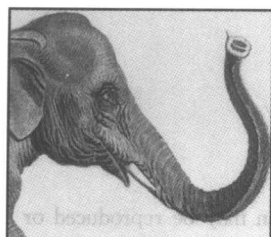
阿普尔顿—兰格

药物学习题集

原著 Gary D. Hall Barry S. Reiss

主译 李德爱 石 杰

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Gary D. Hall

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Preface

Pharmacy licensing examinations are designed to determine whether a candidate has the minimum competencies required to enter and then carry out the responsibilities of the profession. A candidate preparing for the licensing examination must be prepared to demonstrate competence in many areas, any one of which may be the subject for in-depth questioning.

This book is designed as a self-testing tool for the pharmacy student to identify individual areas of strength and weakness, to suggest areas for further review, and to impart new concepts and other information useful to both the student and the practicing pharmacist. The book consists of three major sections: Chapters 1 through 6 concentrate on specific disciplines in order to improve the student's competence in each. Within each chapter, some questions dealing with related subject matter have been grouped together, whereas others have intentionally not been categorized, necessitating a return to certain areas of study in later questions to reinforce prior learning. In each chapter, questions are followed by an Answers and Explanations section, which we think is the keystone of our book. Some comments are quite extensive and represent miniature reviews, whereas others are limited to brief specifics. In every instance, the cited references offer a way for more extensive review.

Chapter 7 consists of patient profiles, each accompanied by a series of related questions. Information obtained from the questions and commentaries in Chapters 1 through 6 will probably aid in answering questions in Chapter 7.

A self-assessment disk is included in this eighth edition to help in preparing you for the computerized format of the NAPLEX. A description of the computer-based examination is provided on page xii.

There are also three appendices: the first lists more than 200 drugs by generic names that the authors consider most likely to be dispensed by pharmacists. Included in the table are trade or brand names, manufacturing companies, a brief description of therapeutic uses, and common dosage forms and strengths. It is *not* necessary to memorize the name of the company manufacturing a certain product, especially with the numerous company name changes; however, many individuals find it easier to relate a trade name to a company. The second appendix supplements the first by presenting some drugs that are mainly dispensed in hospital settings. To complete the cycle, the third appendix serves as a cross-reference of trade names with generic names.

We trust that this book will not be viewed as simply a means to review material for the licensing examination. Passing this examination does not guarantee continued competence throughout a long professional career. Practicing pharmacists must not only retain their previously acquired knowledge and skill, but must remain up to date on contemporary modes of practice. We hope that this book will serve both as a means for self-assessment of competence to practice as well as a valuable guided review. A statement listing professional competency in pharmacy originally prepared by the California State Board of Pharmacy appears on page xi. Many of the test items in this book relate to these competencies.

前言

药学执业考试旨在考核参试者的专业能力，衡量其是否达到行业准入的最低标准。参试者一定还要在其他能力方面做准备，这也是考察的主要内容。

本书可作为药学学生自我检测对所学知识掌握程度的工具，以指导进一步复习的方向，并为药学学生和执业药剂师带来新的观念和其他有用信息。本书主要由三部分组成：第1章至第6章强调具体的原则，以提高学生相应能力。每一章节都把相关的问题放到一起（虽然有些没有明确分类），这样在研究后面的问题时可复习前面的知识并使之得到强化。每章后都附有答案和解释部分，这正是本书的精华。有些讲解很全面并有小的概述，其他部分则只给出具体问题解释。当然，所引用的参考文献提供了查找更多概述的途径。

第7章为患者资料，其后都有一系列相关的问题。从第1章至第6章介绍的知识会有助于回答第7

章中的问题。

此外，本书有三个附录：附录一列出了作者认为药剂师可能最常接触的200多种药品的通用名。表中还标明了药品的商品名、生产厂家、简要的治疗应用以及常用的剂型和强度。没有必要记住某厂家生产了何种产品，况且有很多厂家名字会更换。当然，许多人觉得，将商品名与生产厂家联系起来更容易记些。附录二提供了医院中主要分发的药品，从而对附录一进行了补充。附录三则提供了商品名和通用名的相互对应关系。

我们相信这本书不会仅仅被当作执业药剂师考试的复习材料。通过这个考试并不能保证在整个职业生涯中都能胜任工作。执业药剂师不仅要保持已掌握的知识和技能，一定还要与当代最新的药学实践模式保持同步。希望本书不光是用于药学实践能力的自我评估，也能指导读者对药学的回顾。

Acknowledgments

We would like to thank Christie Naglieri, Editorial Coordinator, and Michael J. Brown, Executive Editor, for their editorial guidance throughout the development of this newly revised edition. We

would also like to recognize and encourage all pharmacy students who aspire to enter and excel in their chosen profession.

*Gary D. Hall, MS
Barry S. Reiss, PhD*

致 谢

感谢助理编辑 Christie Naglieri 以及执行编辑 Michael J 在本书最新版修改过程中给予的指导。并

谨以此鼓励志在以药学为职业并取得优秀成绩的全体学生。

Gary D. Hall, MS
Barry S. Reiss, PhD

How to Use This Book

Professional Competence in Pharmacy

A competent pharmacist is one who is able to confer with a physician about the care and treatment of his or her patient. The pharmacist should appreciate the essentials of the clinical diagnosis and understand the medical management of the patient. He or she should also be informed about the drugs that may be used in the treatment of the patient—their mechanism of action; their combinations and dosage forms; the fate and disposition of the drugs (if known); the factors that may influence the physiological availability and biological activity of the drugs from their dosage forms; how age, sex, or secondary disease states might influence the course of treatment; and how other drugs, foods, and diagnostic procedures may interact to modify the activity of the drug.

A competent pharmacist is one whose overall function is to ensure optimum drug therapy. He or she should know the appropriate indications and dosage regimen for the drug therapy being undertaken as well as the contraindications and potential untoward reactions that may result during therapy. He or she should also be informed as to the proprietary products that might interact adversely with or be useful adjuncts to drug therapy, facilitating administration or improving overall patient care.

A competent pharmacist must be aware of the proposed therapeutic actions of proprietary medications, their composition, and any unique applications or potential limitations of their dosage forms. He or she should be able to objectively appraise advertising claims. At the patient's request, he or she should be able to ascertain the probable therapeutic usefulness of a certain drug in resolving the patient's complaints.

A competent pharmacist should be able to review a scientific publication and summarize the practical implications of the findings as they may relate to the clinical use of drugs. He or she should

be able to analyze a published report of a clinical trial in terms of the appropriateness of the study design and the validity of the statistical analysis, and should be able to prepare an objective summary of the significance of the data and the authors' conclusions.

A competent pharmacist is a specialist as to the stability characteristics and storage requirements of drugs and drug products, the factors that influence the release of drugs from dosage forms, and the effect of the site of administration or its environment within the body on the absorption of a drug from the administered dosage form. Most importantly, the pharmacist understands the effect of the interaction of all these factors on the onset, intensity or duration of therapeutic action.

A competent pharmacist should be precisely informed as to the legal limitations on procurement, storage, distribution, and sale of drugs; the approved use of a drug as specified by federal authorities and acceptable medical practice; and his or her legal responsibilities to the patient when drugs are used in experimental therapeutic procedures.

A competent pharmacist should be able to recommend the drug and dosage form that are most likely to fulfill a particular therapeutic need, supporting his or her choice objectively with appropriate source material. In addition, he or she should be capable of identifying a drug, within a reasonable period of time, on the basis of its color, shape, and proposed use, as described in reference books or other sources.

On the basis of symptoms described in an interview with the patient, a competent pharmacist should know what additional information he or she must obtain from the patient. Based on this information, he or she should be able to refer the patient to the proper medical practitioner, specialist, or agency that would be of most help.

A competent pharmacist should be aware of drug toxicities, as well as the most effective means of treatment for them.

A competent pharmacist should be able to instruct patients on the proper administration of prescription and proprietary drugs. He or she should know which restrictions should be placed on food intake, other medication, and physical activity.

A competent pharmacist should be able to communicate with other healthcare professionals or laymen on appropriate subjects, ensuring that the recipient understands the contents of the message being communicated.

A competent pharmacist should be capable of compounding appropriate drugs or drug combinations in acceptable dosage forms.

Finally, a competent pharmacist is a person who takes appropriate measures to maintain his or her level of competency in each of the areas described above.

Computer-Based Examinations

Following the lead of the nursing profession, many professions have reorganized their entry-level professional examinations to a computer-adaptive test (CAT) format. Qualified candidates have the opportunity to take their exam anytime during the year at a geographical location convenient for them. The actual exam format for pharmacy consists mainly of patient profiles followed by a series of questions that may or may not require reviewing the patient's profile. Using the computer keyboard or mouse, the candidate can scroll back to the profile for any needed information to answer a specific question. The questions will be presented one at a time and must be answered in sequence—that is, one may not skip or skim questions with the intention of returning to them later. Also, once the candidate has selected an answer and entered it into the computer, it is NOT possible to retrieve the answer and make changes. Be sure that you are satisfied with your answer before entering it into the computer. Once entered, forget about that question even if later questions lead you to believe that you gave a wrong answer.

Remember that no one is expected to answer all questions correctly. Instead, the examining body has set reasonable goals based on both easy and more difficult questions or concepts. The examination is designated as a computer-adaptive test because the system evaluates each individual candidate by varying the question difficulty depending on the

candidate's response to previous questions. Thus, different candidates at the same testing site may be answering different questions of varying difficulty. The scoring will be based at least partially on the number of questions answered correctly and the relative level of question difficulty.

When preparing for computer-based exams, the candidate should review material in the exact manner as for any other examination. It is suggested that the candidate participate in any tutorial session offered at the exam site just prior to the actual examination. These sessions will include instruction in the mechanics of operating the computer system being used. However, any anxiety about the use of the computer will soon be overcome once the exam has started. In addition, you are likely to benefit by receiving your grade and pharmacist license much earlier!

Helpful Hints

There are several ways to maximize learning from this review book. For example, the reader could answer a short series of questions before looking for the answers at the end of each chapter. Keeping score will make these chapters function as miniature tests. Unfortunately, when challenged by multiple-choice questions, even in the nonthreatening environment of a self-learning program, our behavioral response is often predictable. When more than 75% of the questions are answered correctly, satisfaction and confidence dominate. As the percentage of missed questions increases, frustration and even panic develop. Such reactions lead to a self-limiting response: namely, the quick memorization of answers. Keep in mind, however, that although you may have increased your knowledge by one fact, you may not have maximized your learning experience. Do you really expect to see the same question on another examination? Do you realize why the other answer choices are not correct? Have you read the explanations of all the questions, even those you answered correctly? Hopefully, these explanations will contain additional tidbits of information that will increase your knowledge base. If the question mentions a drug with which you are not familiar, be sure to look up the drug in one of the reference sources at your disposal. The next time you see that drug may be when it is the subject of a question. Some questions may concern topics with which you are not familiar. This is a perfect opportunity for learning!

Rather than blindly guessing at the answers, seek information in the cited reference or other sources and then attempt to answer the question. If your answer does not agree with the one given in this book, check further in another source. Keep

digging—learning cannot be passive. Recognize that a question stating “which of these does *not*” or “all of these *except*” gives you four positive facts or statements. These, in themselves, have expanded your knowledge base.

如何使用本书

药学专业能力

合格的药剂师能够和医生探讨患者的监护和治疗，能够知道临床诊断的概要并理解患者的医疗处置方案。他/她应该熟知患者治疗所用的药物——作用机制、制品和剂型、药物的转归和代谢（如果可知）；可能影响生理利用度和生物活性的剂型的因素；年龄、性别以及其他可能对治疗过程产生影响的因素；以及其他药物、食物及诊疗过程可能对药物活性产生的影响。

合格的药剂师的全部作用就是确保给予患者最佳的药物治疗。应熟悉所用药物的最佳适应证、给药方案、禁忌证以及治疗过程中可能产生的棘手反应。还应知道可能与治疗药物发生不良反应的特有产品及对药物治疗有用的辅助产品，促进给药或提高整个患者的监护。

合格的药剂师必须知道所用药物的治疗效果、组成和特别用法以及潜在的剂型限制。能客观评价广告的宣传。应患者的要求用药时，应能确保药物具有治疗作用，以解除患者的痛苦。

合格的药剂师能够博览科技文献并总结与临床用药相关的、实用的、新发现的适应证。能够根据研究设计的恰当性和统计分析的合理性分析发表的临床实验结果，并能对作者的数据和结论做出客观的概括。

合格的药剂师是药物和药物产品稳定性和储藏要求的专家，是熟知剂型、给药部位及给药身体周围环境等因素对药物释放影响的专家。更为重要的是，药剂师知道这些因素在治疗起始、增强或治疗持续期的相互作用情况。

合格的药剂师应准确掌握药物的采购、贮存、分发和销售的法律规定，知道政府对药物准许应用的详细规定，明确其在医疗实践及药物实验治疗中应承担

的法律责任。

合格的药剂师能推荐最可能满足临床需要的药物和剂型，能用合适的材料支持其选择的客观性。此外，还要求能在合理的时间内根据颜色、形状及推荐的用途、参考书或其他资料的描述等区分出药物。

合格的药剂师根据对患者症状的总体描述，能够知道还需要从患者那里得到哪些其他信息，并据此与相应的从业医生、专家或机构提出最有意义的治疗帮助。

合格的药剂师应该懂得药物既是好的治疗手段，也具有毒性。

合格的药剂师能够指导患者恰当地应用处方药物和专利药，知道应限制摄入的食物、其他药物和体力活动。

合格的药剂师能够与其他医疗保健人员或外行人就相应的主题进行交流，并能使对方理解交流的内容。

合格的药剂师能够就需要的剂型配置相应的药物或复方制剂。

最后，合格的药剂师能够在上述各方面用恰当的学习方法，保持能够胜任工作的专业水平。

计算机化的考试

继护理专业考试后，许多的职业准入级考试都采取了计算机化的形式。具备条件的参试者可就近在一年中任何时间参加考试。药学考试的实际形式主要是由患者资料构成，其后有一系列与此资料相关或不相关联的问题。通过键盘或鼠标参试者就可返回到回答具体问题所需要参考的患者资料。这些问题只能出现一次并且按顺序回答，也就是说答题者一旦跳过或浏览过后将无法再返回。此外，答题者一旦选定并输入答案后，将无法修改。因此，在输入答案前一定要选

准确。一旦输入答案就不要管它了，虽然随后的问题提示你可能先前选错了。

记住，没有人能全部答对。考试的主要合理目标要求试题既要有简单的也要有难的问题和概念。考试之所以设计为计算机化形式是因为系统能够根据参试者对上一题的答题情况来调整试题的难度。这样不同的参试者即使在相同的考试地点也可能回答不同难度的问题。考试的分数至少部分地取决于答对的问题数和相对的试题难度。

准备上机考试时，参试者应像参加其他考试一样先复习材料。建议实际考试前参加考试地点组织的辅导班。辅导班能提供上机考试的操作技能。当然，一旦考试开始，对计算机操作问题的担心很快就能解决了。此外，说不定你能更早地收到较好的成绩和执业药师资格！

有益的提示

有以下几种方法可使对本书的学习达到最佳化，如读者先做题然后再看每章后的答案。可把每个章节当成一份小的测验试卷，计算得分。遗憾的是，在做

多选题时，即使是日常的学习环境，我们也常常是猜测。当答对超过 75% 的问题时，就常会感到满足和自信。当答错的问题增多时，又会产生灰心和恐慌。这些反应就导致了自我限制性的应对行为，那就是快速背答案。当然，这种行为可能会提高成绩，但绝不是好的学习方式。你真指望能在下一次考试中出现同样的问题么？你知道为什么其他答案错误么？即使你答对了，你看了所有答案的解释了么？希望这些答案的解释能够使你获得额外的能增加知识量的信息。如果问题中提到的药物有你所不熟悉的，一定要从你手边的参考书中查找该药物。下次说不定该药物就是你遇到的问题的考试点。有些问题涉及面可能你并不熟悉，但这正是好的学习机会。

不要盲目地去猜答案，要从引用的参考书或其他资料中找相关信息然后再尝试回答问题。如果你的答案与所查的书中的不相符，再去查找另外的资料。保持挖掘式的学习就不会陷入被动。要弄清楚给定四个正面事实或陈述中的带有“答案中不对的是”或“答案中除外的是”的问题。这些本身能扩大你的知识库。

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Pharmacology

Since 1940, the first edition of the book cited in the references as reference 6 has been known to successive classes of pharmacy students as simply Goodman and Gilman. On page 1 of the current edition, the following statement can be found: "In its entirety, pharmacology embraces the knowledge of the history, source, physical and chemical properties, compounding, biochemical and physiological effects, mechanisms of action, absorption, distribution,

biotransformation and excretion, and therapeutic and other uses of drugs. Since a drug is broadly defined as any chemical agent that affects processes of living, the subject of pharmacology is obviously quite extensive."

The test items in this chapter deal with some of these areas of pharmacology. Related questions may be found in chapters on biopharmaceutics and pharmacokinetics and on pharmaceutical care.

Questions

DIRECTIONS (Questions 1 through 185): Each of the numbered items or incomplete statements in this section is followed by answers or by completions of the statement. Select the ONE lettered answer or completion that is BEST in each case.

1. Sulfones such as dapsone are employed commonly in the treatment of
 - (A) Bright's disease
 - (B) Hansen's disease
 - (C) schizophrenia
 - (D) atrial flutter
 - (E) psoriasis
2. A patient with allergic rhinitis may be treated with a topical nasal corticosteroid such as
 - (A) diphenhydramine
 - (B) cetirizine
 - (C) prednisone
 - (D) zafirlukast
 - (E) budesonide
3. Which of the following statements is (are) true of atorvastatin calcium?
 - I. It may be administered orally or parenterally.
 - II. It is utilized for the treatment of candidiasis.
 - III. It is used for the same indication as nicotinic acid.
 - (A) I only
 - (B) III only
 - (C) I and II only
 - (D) II and III only
 - (E) I, II, and III
4. A pharmacist is about to dispense torsemide 20 mg tablets? Which of the following concerns would be considered in using this product?
 - I. Potassium supplementation may be required.
 - II. Ototoxicity may occur.
 - III. Patients with sulfahypersensitivity

should not use this product.

- (A) I only
 - (B) III only
 - (C) I and II only
 - (D) II and III only
 - (E) I, II, and III
5. Quetiapine is used for the same indication as
- (A) pilocarpine
 - (B) quinidine
 - (C) nifedipine
 - (D) celecoxib
 - (E) risperidone
6. Which of the following statements is (are) true of ticlopidine HCl (Ticlid)?
- I. inhibits platelet aggregation
 - II. dissolves blood clots
 - III. only administered parenterally
- (A) I only
 - (B) III only
 - (C) I and II only
 - (D) II and III only
 - (E) I, II, and III
7. Gabapentin is indicated for the treatment of
- I. Parkinsons disease
 - II. postherpetic neuralgia
 - III. epilepsy
- (A) I only
 - (B) III only
 - (C) I and II only
 - (D) II and III only
 - (E) I, II, and III
8. The primary reason why clavulanate potassium is combined with amoxicillin is to
- I. provide greater gram-negative coverage
 - II. act as a buffer to prevent GI decomposition of the amoxicillin
 - III. prevent destruction of amoxicillin activity by beta-lactamase
- (A) I only
 - (B) III only
 - (C) I and II only
 - (D) II and III only
 - (E) I, II, and III
9. Mr. Harris has just begun treatment with metformin. He should be monitored for the development of which of the following?
- I. lactic acidosis
 - II. respiratory distress
 - III. hypercalcemia
- (A) I only
 - (B) III only
 - (C) I and II only
 - (D) II and III only
 - (E) I, II, and III
10. As an antiarrhythmic drug, tocainide is most similar in action to which one of the following agents?
- (A) amiodarone
 - (B) mexiletine
 - (C) digoxin
 - (D) verapamil
 - (E) propranolol
11. A pharmacist dispenses *ortho*-tri-cyclen to Janice Brown, a 19-year-old new user of this product. The patient reads the patient package insert (PPI) and asks how the norgestimate component of this product works. Which of the following would be an appropriate response by the pharmacist?
- I. It prevents ovulation.
 - II. It increases the viscosity of cervical fluids.
 - III. It prevents implantation of a fertilized egg onto the uterine wall.
- (A) I only
 - (B) III only
 - (C) I and II only
 - (D) II and III only
 - (E) I, II, and III
12. Clonidine may best be described as a (an)
- (A) alpha-adrenergic blocker
 - (B) beta-adrenergic blocker

- (C) MAO inhibitor
(D) alpha-adrenergic agonist
(E) beta-adrenergic agonist
13. Minoxidil is an antihypertensive agent that works by
(A) directly dilating peripheral blood vessels
(B) potentiating GABA activity
(C) blocking alpha-adrenergic receptors
(D) inhibiting COMT
(E) blocking beta-adrenergic receptors
14. Agent(s) indicated for the treatment of depression include(s)
I. bupropion
II. venlafaxine
III. citalopram
(A) I only
(B) III only
(C) I and II only
(D) II and III only
(E) I, II, and III
15. A common adverse effect associated with the use of antacids containing calcium carbonate is
(A) nausea and vomiting
(B) gastrointestinal bleeding
(C) flatulence
(D) diarrhea
(E) hypoparathyroidism
16. Reduced clotting ability of the blood is associated with the administration of
I. filgrastim
II. abciximab
III. clopidogrel
(A) I only
(B) III only
(C) I and II only
(D) II and III only
(E) I, II, and III
17. Carbidopa can best be classified as a drug that
(A) reverses symptoms of Parkinson's disease
(B) exerts an anticholinergic action
(C) is a dopaminergic agent
(D) is a dopa-decarboxylase inhibitor
(E) is a COMT inhibitor
18. Selegiline can best be described as a (an)
(A) MAO-B inhibitor
(B) anticholinergic
(C) COMT inhibitor
(D) dopamine antagonist
(E) α_1 agonist
19. Which of the following is (are) true of fentanyl?
I. available as a transdermal system
II. available as a transmucosal dosage form
III. may be used as a cough suppressant
(A) I only
(B) III only
(C) I and II only
(D) II and III only
(E) I, II, and III
20. Lactase enzyme is commercially available for the treatment of
(A) lactose intolerance
(B) galactokinase deficiency
(C) cystic fibrosis
(D) phenylketonuria
(E) Crohn's disease
21. Isotretinoin (Accutane) is a drug employed in the treatment of severe recalcitrant cystic acne. Which one of the following is NOT an adverse effect associated with its use?
(A) hypertriglyceridemia
(B) fetal abnormalities
(C) pseudotumor cerebri
(D) conjunctivitis
(E) hyponatremia
22. Which of the following is (are) true of valsartan (Diovan)?
I. Should NOT be used in women during the third trimester of pregnancy.
II. Should NOT be administered with hydrochlorothiazide.
III. It is an ACE inhibitor.