

Pharmacology

Health Science Event

Eligible Divisions: Secondary & Postsecondary / Collegiate	Round 1: 100 Q test in 90 minutes	Digital Upload: NO
Solo Event: 1 competitor		



New for 2024 - 2025

The test plan has been updated. Editorial updates have been made.

Event Summary

Pharmacology provides HOSA members with the opportunity to gain knowledge and skills regarding the area of healthcare concerned with drug uses, effects, and modes of action. This competitive event consists of a written test with a tiebreaker essay question. It aims to inspire members to learn about drugs' actions on the body, proper administration, and adaptations for different patients and conditions.

Dress Code

Proper business attire or official HOSA uniform. Bonus points will be awarded for [proper dress](#).

Competitor Must Provide:

- [Photo ID](#)
- Two #2 lead pencils (not mechanical) with eraser

General Rules

1. Competitors must be familiar with and adhere to the [General Rules and Regulations](#).

Official References

2. The references below are used in the development of the test questions.
 - a. [Moini, Jahangir. *The Pharmacy Technician: A Comprehensive Approach*. Cengage Learning. Latest edition.](#)
 - b. [Ford, Susan and Sally Roach. *Introductory Clinical Pharmacology*. Wolters Kluwer. Latest edition.](#)

Written Test

3. [Test Instructions](#): The written test will consist of 100 multiple-choice items in a maximum of 90 minutes.
4. One essay question will be administered with the test.
5. **Time Remaining Announcements:** There will be NO verbal announcements for time remaining during ILC testing. All ILC testing will be completed in the Testing Center and competitors are responsible for monitoring their own time.
6. **Test Plan**
The test plan for the Pharmacology Test is: (Safety will be integrated throughout the test plan)
 - Basic Concepts in Pharmacology - 15%
 - Ethical and Legal Responsibilities - 10%
 - Pediatrics and Geriatrics Adaptations - 10%
 - Drug Names, Classifications, Actions, and Interactions - 30%
 - Drug Administration - 20%
 - Drug Measurement, Dosage, Conversions - 10%
 - Technologies in Pharmacology - 5%

7. At the International Leadership Conference, HOSA will provide basic handheld calculators (no graphing calculators) for addition, subtraction, division, multiplication, and square root calculations.
8. **ROUNDING:** Converting between measurement systems often yields a different answer depending on which systems and conversions are used. However, the answer to a calculation problem will ultimately be the same after appropriate rounding. When determining a solution, round only the final answer after completing all calculation steps.

When rounding decimal numbers to the nearest tenths, hundredths, or thousandths place, look to the immediate right of the digit located in the position to be rounded. If the number to the direct right is 5 or larger, round up one number and drop everything that follows. If the number to the direct right is 4 or smaller, leave the position being rounded as is and drop everything that follows.

In specific situations, answers will be rounded per medical protocol. For example, pediatric dosage is always rounded DOWN to avoid potential overdose. Unless otherwise indicated, all answers should be rounded to the nearest whole number. (Examples: 31.249 (rounded down) = 31 and 23.75 (rounded up) = 24).

9. **USE OF ZERO:** Decimal expressions of less than 1 should be preceded by a zero – “leading zero.” A whole number should never be followed by a decimal point and a zero – “trailing zero.”

10. Sample Test Questions

1. What U.S. federal legislation established financial incentives for the development and marketing of drugs for the treatment of rare diseases? (Moini pp 5)
 - A. Amendment to Applications for FDA Approval to Market New Drug
 - B. Drug Regulation and Reform Act of 1978
 - C. Omnibus Budget Reconciliation Act
 - D. **Orphan Drug Act of 1983**
2. A client who has been taking salicylates for an extended period of time should be watched closely for which of the following adverse reactions? (Ford pp 166)
 - A. **GI bleeding**
 - B. Fever of undetermined origin
 - C. Hypotension
 - D. Diminished urinary output
1. Dramamine 25 mg po is ordered for nausea and vomiting. The bottle is labeled 5 mg/4 mL. How many mL will be given per dose? (Moini pp 164-169)
 - A. 16 mL
 - B. **20 mL**
 - C. 40 mL
 - D. 50 mL

$$\begin{aligned} \text{Solution} \quad & 5 \text{ mg}/4 \text{ mL} = 1.25 \text{ mg/mL} \\ & 25 \text{ mg/dose} \times 1 \text{ mL}/1.25 \text{ mg} = 20 \text{ mL/dose} \end{aligned}$$

Final Scoring

11. In case of a tie, the essay will be judged and used to break the tie.