Behavioral Health provides members with the opportunity to gain knowledge and skills surrounding psychology, the mind, mental health and substance use disorders. This competitive event consists of an online test with a tie-breaker essay question. This event aims to inspire members to learn about and promote mental health resilience as well as learn how to support those in recovery, their families and the health community.

**General Rules**

1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing.

2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.

3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

**Official References**

- [Substance Abuse and Mental Health Services Administration website](#)
- [Cacioppo, John and Laura Freberg, Discovering Psychology, Cengage Learning, Latest edition.](#)
- [National Alliance on Mental Illness website](#)
- [CVS Opioid Abuse Prevention](#)

**Virtual Online Test**

4. **Test Instructions**: The online test will consist of 100 multiple choice items in a maximum of 90 minutes.

5. One essay question will be administered with the original test. In case of a tie, the essay question will be judged and used to break the tie.

6. The test plan and resources for Behavioral Health Test are:
   - **The Mind**........................................................................................................................................25%
     - Biology
     - Sensation
     - Perception
     - Consciousness
     - Motivation
     - Emotion
     - Learning
     - Memory
7. Sample Test Questions
1. What part of the nervous system manages essential functions, such as heart rate and blood pressure?
   A. Cerebellum  
   B. Pons  
   C. **Medulla**  
   D. Cerebellum  
   Cacioppo pp 114

2. A student is seeking a counselor to work on individual strategies to develop knowledge, attitudes and skills needed to change certain behaviors. Which of the following elements is *not* a component of an effective program?
   A. Focusing on life and social skills.  
   B. Peer support services.  
   C. Focusing on physical skills.  
   D. **Social commitment to not using drugs.**  
   SAMHSA

3. Which type of psychology explores normal changes in behavior that occurs across the life span?
   A. Cognitive  
   B. **Developmental**  
   C. Clinical  
   D. Behavioral  
   Cacioppo pp 27

Final Scoring

8. Final rank is determined by the test score. In case of a tie, the essay question will be used to determine the rank.
Event Summary
Cultural Diversity & Disparities in Healthcare provides members with the opportunity to gain knowledge and skills regarding cultural competence in the promotion of better health. This competitive event consists of an online test with a tie-breaker essay question. This event aims to inspire members to learn about cultural diversity, identify disparities in healthcare, and understand cultural differences.

General Rules
1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing.
2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.
3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

Official References
- Spector, Rachel E. Cultural Diversity in Health and Illness. Prentice Hall.
- https://medlineplus.gov/healthdisparities.html

Virtual Online Test
4. **Test Instructions:** The online test will consist of 100 multiple choice items in a maximum of 90 minutes.
5. One essay question will be administered with the original test. In case of a tie, the essay question will be judged and used to break the tie.
6. The test plan and resources for Cultural Diversity and Disparities in Healthcare are:
   - Cultural Foundations 15%
   - Health Disparities & Diversity 20%
   - Health Traditions & Cultural Competence 15%
   - Religion, Rituals, Health and Illness
     - Native American Heritage 10%
     - Asian Heritage 10%
     - African Heritage 10%
     - Hispanic/Latino Heritage 10%
     - European Heritage 10%
7. **Sample Test Questions**
   1. As described by O’Neil, what is the term for the cultural and sometimes physical characteristics used to classify people into groups or categories considered to be significantly different from others?
      A. *Ethnicity*
      B. *Culture*
      C. *Race*
      D. *Nationality*
      Spector pp 21
   
   2. What year was the *CDC Health Disparities and Inequalities Reports* first published?
      A. 2010
      B. **2011**
      C. 2012
      D. 2013
      CDC
   
   3. Which term refers to the process of cultural or behavioral assimilation and becoming absorbed into the dominant social culture?
      A. *Ethnocentrism*
      B. *Collectivism*
      C. *Espiritism*
      D. **Acculturation**
      Spector pp 25

**Final Scoring**

8. Final rank is determined by the test score. In case of a tie, the essay question will be used to determine the rank.
Dental Terminology provides members with the opportunity to gain knowledge and skills regarding language common to all dental careers and specialties. This competitive event consists of an online test with tie-breaker questions. This event aims to inspire members to learn about dental terminology, physiology and pathophysiology.

**General Rules**

1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing.

2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.

3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

**Official References**


**Virtual Online Test**

4. **Test Instructions:** The online test will consist of 100 multiple choice items in a maximum of 90 minutes.

5. A series of twenty (20) tie breaking questions will be administered with the original test. the tie-breaker, correct spelling is required for an item to be considered correct.

6. The test plan for the Dental Terminology test is:
   - Dental Specialties (related procedures, terminology and spelling) 40%
     - Oral and Maxillofacial Surgery
     - Cosmetic Dentistry
     - Pediatric Dentistry
     - Dental Laboratory
     - Prosthodontics
     - Endodontics
     - Orthodontics
     - Periodontics
   - Instruments and Materials 20%
   - Prefixes, Suffixes and Combining Forms 10%
   - Anatomy & Physiology of Head and Oral Structures 10%
   - Infection Control and Emergency Care 10%
   - Ethical and Legal 5%
   - Radiography 5%
7. **Sample Test Questions**

1. What ridge occurs on the occlusal surface of posterior teeth at a point where two triangular ridges meet?
   A. Marginal
   B. Oblique
   C. **Transverse**
   D. Triangular
   Dofka pp 62

2. Which suffix refers to knowledge?
   A. -algia
   B. **-gnosis**
   C. -ology
   D. -trophy
   Dofka pp 14

3. What is the double-ended hand instrument with a pointed tip on one end used to carve features in newly placed restorations?
   A. Chisel
   B. **Cleoid**
   C. Hatchet
   D. Hoe
   Dofka pp 78

**Final Scoring**

8. Final rank is determined by the test score. In case of a tie, successive sets of five tie-breaker questions will be used until a winner is determined.
Event Summary
Health Informatics provides members with the opportunity to gain knowledge and skills regarding the management of health information and the assimilation of technology in health care. This competitive event consists of an online test and aims to inspire members to learn about concepts related to the study of informatics.

General Rules
1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing.
2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.
3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

Official References

Virtual Online Test
4. Test Instructions: The online test will consist of 75 multiple choice items in a maximum of 90 minutes.
5. A tiebreaker will be administered with the original test. In case of a tie, this response will be judged and used to break the tie.
6. The test plan and resources for Health Informatic Test are:
   Test Plan:
   History, Careers and Roles.................................................. 5%
   Healthcare Data and Analytics........................................... 10%
   Electronic Health Records, Information Exchange & Retrieval..... 12%
   Health Information Privacy & Security............................... 5%
   Health Information Ethics & Governance............................ 5%
   Patient Safety & Consumer Health Information..................... 11%
   Information Systems In Healthcare Delivery....................... 10%
   Evidence Based Clinical Practice..................................... 12%
   Application: EBM Case Studies & Clinical Trials;
   EHR Data Entry, Retrieval & Analysis.................................. 30%
7. Case studies, clinical trials, and EHRs will be a part of the test and will assess knowledge and skills related to the analysis of background data and information; data entry and retrieval; and risk measures and calculations. A series of multiple choice questions related to the data will be included.

8. Sample Test Questions
1. Which discipline is defined as the management of healthcare data and information through the application of computers and other information technologies?
   A. Bioinformatics
   B. Public Health Informatics
   C. Health Informatics
   D. Clinical Informatics
   Hoyt/Hersh pp 2

2. In what year was the world’s first computer-aided medical information system installed to aid in actual patient care?
   A. 1958
   B. 1962
   C. 1971
   D. 1983
   Nelson/Staggers pp 597

3. What is the term for online groups in which patients interact, sharing health-related data and learning from each other’s experiences while being unbound by geographic limitations, social stigma, or other limiting characteristics?
   A. eHealth precision medicine
   B. ePatient exchange
   C. Patient-focused virtual communities
   D. ePatient platform
   Nelson/Staggers pp 213

Final Scoring
9. Final rank is determined by the test score. In case of a tie, the essay question will be used to determine the rank.
Human Growth & Development provides members with the opportunity to gain knowledge and skills regarding biophysical, mental/cognitive, social, and emotional development in the human life span. This competitive event consists of an online test with a tie-breaker essay question. This event aims to inspire members to learn more about growth and development as a whole across the life span.

**General Rules**
1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing.
2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.
3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

**Official References**

**Virtual Online Test**
4. **Test Instructions:** The online test will consist of 100 multiple choice items in a maximum of 90 minutes.
5. One essay question will be administered with the original test. In case of a tie, the essay question will be judged and used to break the tie.
6. The test plan for Human Growth & Development is:
   - Healthy People 5%
   - Government influence on Health 6%
   - Cultural considerations 5%
   - Family Influences 10%
   - Theories of Development 10%
   - Prenatal 7%
   - Infant 5%
   - Early Childhood 10%
   - Middle Childhood 6%
   - Adolescence 5%
   - Adulthood 15%
   - Advanced old age and Geriatrics 5%
- Planning for end of life 3%
- Loss, Grief and Bereavement 5%
- Communication 3%

7. **Sample Test Questions**

1. What is the life stage during which muscle coordination is well developed, and individuals can engage in physical activities that require complex motor-sensory coordination?
   A. Preadolescence
   B. Toddler
   C. **Late childhood**
   D. Adolescence
   Simmers pp 247

2. In 2009, what was the rank for the U.S. life expectancy at birth as compared to other countries?
   A. 15th
   B. 25th
   C. 40th
   D. **50th**
   Leifer pp 7

3. What is the term for the irregular pigmentation of aging skin caused by the uneven distribution of melanocytes?
   A. **Senile lentigo**
   B. Keratinization
   C. Maldistribution
   D. Atherosclerosis
   Polan pp 203

**Final Scoring**

8. Final rank is determined by the test score. In case of a tie, the essay question will be used to determine the rank.
Medical Law & Ethics provides members with the opportunity to gain knowledge and skills regarding medical law, ethics and bioethics. This competitive event consists of an online test with a tie-breaker essay question. This event aims to inspire members to learn about ethical and legal terms as well as how to analyze, synthesize and evaluate information related to this field.

### General Rules
1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing.
2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.
3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

### Official References
- **Lewis, Tammaro and Tatro. Medical Law, Ethics and Bioethics. F.A. Davis, Latest edition.**
  
  An updated 12th chapter of this book has been released ahead of the new edition coming next year. For HOSA membership year 2020-2021 the updated 12th chapter of this book, as accessed HERE, will be used for test questions at ILC 2021.
- **Fremgen, Bonnie. Medical Law and Ethics. Prentice Hall, Latest edition.**

### Virtual Online Test
4. **Test Instructions:** The online test will consist of 100 multiple choice items in a maximum of 90 minutes.
5. One essay question will be administered with the original test. In case of a tie, the essay question will be judged and used to break the tie.
6. The test plan for Medical Law & Ethics is:
   - The Basics: Medical Law, Ethics and Bioethics 5%
   - The Legal Environment 35%
     - State and Federal Regulations; Consent
     - The Legal System; Professional Liability
     - Law for Health Professionals; Public Duty
   - The Health Care Environment 35%
     - Physician Patient Relationships
     - Medical Malpractice
     - Medical Records
     - Workplace Law and Ethics
     - Cultural Perspective
     - Patient Confidentiality
     - Employment Practices
• Bioethical Issues  
  o Ethical and Bioethical Issues in Medicine  
  o Allocation of scarce resources  
  o Genetic engineering  
  o Reproductive Issues  
  o End of Life Issues

7. **Sample Test Questions**

1. Which of the following describes the concept of implied contracts in health care?  
   A. Contracted through an independent agent.  
   B. Explained to the patient by the physician.  
   C. Stated in distinct clear language.  
   D. **Understood without verbally expressed terms.**  
      Fremgen pp 41

2. Which of the following entities would **not** be involved in making macro allocation decisions concerning how much can be expended for medical resources and how the resources are to be distributed?  
   A. Local hospitals  
   B. State legislatures  
   C. Health insurance carriers  
   D. Congress  
      Lewis pp 183

3. Before human research can be conducted, all institutions that receive federal research funds must establish which of the following entities?  
   A. Institutional Department Chair  
   B. Institutional Ethics Committee  
   C. **Institutional Review Board**  
   D. Department of Human Services  
      Fremgen pp 267

**Final Scoring**

8. Final rank is determined by the test score. In case of a tie, the essay question will be used to determine the rank.
Event Summary

Medical Math provides members with the opportunity to gain knowledge and skills required to identify, solve, and apply mathematical principles. This competitive event consists of an online test with tie-breaker questions. This event aims to inspire members to learn about the integration of mathematics in health care, including temperature, weights, and measures used in the health community.

General Rules

1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing.

2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.

3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

Official References


Virtual Online Test

4. **Test Instructions:** The online test will consist of 50 multiple choice items in a maximum of 90 minutes.

5. A series of ten (10) complex, multi-step tie breaking questions will be administered with the original test. In case of a tie, successive tie-breaker questions will be used until a winner is determined. In the tie-breaker, correct spelling is required for an item to be considered correct.

6. **Online Test Plan:**

   - Mathematical essentials................................................................. 5%
   - Measurement and conversion problems...................................... 20%
   - Drug dosages and intravenous solutions..................................... 35%
   - Dilutions, solutions and concentrations....................................... 25%
   - Interpreting medical information............................................... 15%
     - Charts, graphs, tables
     - Basic statistics: mean, median, mode, standard deviation
     - Calculating body surface
NOTE:  1. Abbreviations will be used in the written problems. In addition, the test will use standard medical abbreviations as designated in the Simmers DHO Health Science reference.  
2. At least half of the computation and calculation problems will involve conversions. 

7. The medical math “Reference Materials Summary” included in these guidelines (page 4) will be used as the official reference for the test for uniformity. Competitors may NOT use this summary page or any type of conversion chart or resource during the test.

8. Converting between measurement systems will often render a different answer depending upon which systems and conversions are being used. The answer to a calculation problem will ultimately be the same answer after appropriate rounding.

**ROUNDING:** When rounding decimal numbers to the nearest tenths, hundredths, or thousandths, 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 to the position 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. Sample Test Questions

1. An IV bag of 500 mL solution is started at 1900. The flow rate is 38 gtts per minute, and the drop factor is 10 gtts per mL. At what time (24-hour clock) will this infusion finish?  
   (Craig pp 174-178)

   **Solution**
   
   \[
   \text{38 gtts/1 min x 1 mL/10 gtts} = 3.8 \text{ mL/min} \\
   3.8 \text{ mL/1 min x 60 min/1 hr} = 228 \text{ mL/hr} \\
   500 \text{ mL x 1 hr/228 mL} = 2.19 \text{ hr} \\
   0.19 \text{ hr x 60 min/1 hr} = 11.4 \text{ minutes} \\
   1900 \text{ hr + 2 hrs 11 min} = 2111 \text{ hours}
   \]

   (Helms pp 110-114)

   **Solution**
   
   \[
   95.5 \text{ lb x 1 kg/2.2 lbs} = 43.40909 \text{ kg} \quad \text{Rounded} = 43.4 \text{ kg}
   \]

3. How many grams of sodium chloride are needed to prepare 500 mL of a 5% solution? (Olson pp214-227)

   **Solution**
   
   \[
   5\% = 5 \text{ g/100 mL} = 0.05 \text{ g/1 mL} \\
   0.05 \text{ g/1 mL x 500 mL} = 25 \text{ g}
   \]

**Final Scoring**

10. Final rank is determined by the test score. In case of a tie, the tie-breaking questions will be used to determine the rank.
## METRIC EQUIVALENTS

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<th>Temperature</th>
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<tbody>
<tr>
<td>1 meter (m) = 100 centimeters (cm) = 1000 millimeters (mm)</td>
<td>°C (Degrees Celsius) = (°F - 32) x 5/9</td>
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<tr>
<td>1 centimeters (cm) = 10 millimeters (mm)</td>
<td>°F (Degrees Fahrenheit) = (°C) x 9/5 + 32</td>
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<table>
<thead>
<tr>
<th>Weight</th>
<th>Weight Conversion</th>
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</thead>
<tbody>
<tr>
<td>1 kilogram (kg) = 1000 grams (g)</td>
<td>1 kilogram (kg) = 2.2 pounds (lb)</td>
</tr>
<tr>
<td>1 gram (g) = 1000 milligrams (mg)</td>
<td>1 pound (lb) = 16 ounces (oz)</td>
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<tr>
<td>1 milligram (mg) = 1000 micrograms (mcg)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume for Solids</th>
<th>Volume for Fluids</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1 liter (L) = 1000 milliliters (mL)</td>
</tr>
<tr>
<td>1000 cubic centimeters (cm³) = 1 cubic decimeter (dm³)</td>
<td>10 centiliters (cL) = 1 deciliter (dL)</td>
</tr>
<tr>
<td>1000 cubic millimeters (mm³) = 1 cubic centimeter (cm³ or cc)</td>
<td>10 deciliters (dL) = 1 liter (L)</td>
</tr>
<tr>
<td></td>
<td>1 cubic centimeters (cm³ or cc) = 1 milliliter (mL)</td>
</tr>
</tbody>
</table>

### APPROXIMATE EQUIVALENTS AMONG SYSTEMS

<table>
<thead>
<tr>
<th>Metric</th>
<th>Household/English</th>
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</thead>
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<td>240 milliliters (mL)</td>
<td>1 cup = 8 ounces (oz) = 16 tablespoons (tbsp)</td>
</tr>
<tr>
<td>30 milliliters (mL)</td>
<td>1 ounce (oz) = 2 tablespoons (tbsp) = 6 teaspoons (tsp)</td>
</tr>
<tr>
<td>15 milliliters (mL)</td>
<td>1 tablespoon (tbsp) = 3 teaspoons (tsp)</td>
</tr>
<tr>
<td>5 milliliters (mL)</td>
<td>1 teaspoon (tsp)</td>
</tr>
<tr>
<td>1 milliliter (mL)</td>
<td>15 drops (gtts)</td>
</tr>
<tr>
<td>0.0667 milliliters (mL)</td>
<td>1 drop (gtt)</td>
</tr>
<tr>
<td>1 meter (m)</td>
<td>39.4 inches (in)</td>
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<tr>
<td>2.54 centimeters (cm)</td>
<td>1 inch (in)</td>
</tr>
<tr>
<td></td>
<td>1 foot (ft) = 12 inches (in)</td>
</tr>
</tbody>
</table>

### Formulas

- **Standard Deviation Formula for Sample Data**
  \[
  \sqrt{\frac{\sum(x-\overline{x})^2}{(n-1)}}
  \]

- **Body Surface Area**
  \[
  \text{BSA (m}^2\text{)} = \sqrt{[\text{height (cm)} \times \text{weight(kg)}]/3,600)}
  \]
  \[
  \text{BSA (m}^2\text{)} = \sqrt{[\text{height (in)} \times \text{weight(lb)}]/3,131)}
  \]

### References


Event Summary

Medical Reading provides members with the opportunity to improve their reading comprehension and understanding of special topics related to leadership development and the health community. This competitive event shall be an online test consisting of information and knowledge gained from reading the selected books each year. Competitors will apply, analyze, synthesize and/or evaluate the reading material in a multiple-choice test plus one tie-breaker essay question. This event aims to inspire members to be proactive future health professionals and utilize the knowledge gained from reading medical and leadership books.

Rules and Procedures

1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing in the division in which they are registered to compete (Secondary or Postsecondary/Collegiate).

2. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

3. The books for the year will be selected by the HOSA Competitive Events program staff and will relate to Health Science Education curriculum competencies.

Official References

4. Secondary & Postsecondary/Collegiate competitors will read the following five books for 2020-2021:
   - Identity Leadership: To Lead Others You Must First Lead Yourself by Stedman Graham
   - The Real Grey’s Anatomy: A Behind the Scenes Look at the Real Lives of Surgical Residents by Andrew Holtz
   - Epic Measures: One Doctor, 7 Billion Patients by Jeremy Smith
   - Compassionomics: The Revolutionary Scientific Evidence that Caring Makes a Difference by Anthony Mazzarelli and Stephen Trzeciak

Virtual Online Test

5. The event is a 50-question, multiple-choice test (10 questions per book) and one (1) tie-breaker essay question

6. There will be a 60 minute time limit. No study lists will be provided
7. **Sample Test Questions** *(Samples are from a previous year)*

*Radium Girls*

1. The symptoms of radium poisoning are very similar to poisoning from which other chemical?
   A. Bromine
   B. Carbon
   C. Lead
   D. **Phosphorus**

2. What was the nickname given to the girls who shined at night from the radium powder?
   A. **Ghost girls**
   B. Shimmering girls
   C. Radiant girls
   D. Lustrous girls

3. How did Mollie Maggia die?
   A. Increased blood volume due to increased number of red cells
   B. **Hemorrhaging from the jugular vein**
   C. Bone necrosis and bone cancer
   D. Breast cancer with metastasis to the brain

**Final Scoring**

8. Final rank is determined by the test score. In case of a tie, the essay question will be used to determine the rank.
Event Summary

Medical Spelling provides HOSA members with the opportunity to gain knowledge and skills regarding definitions and spelling of medical terms. This competitive event consists of an online multiple-choice test.

General Rules

1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing.

2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.

3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

Official References

4. The test items and the medical term lists shall be randomly selected from the standard reference. No study lists will be provided. The official reference for terms selected shall be:


Purchasing the dictionary will also give HOSA members access to the audio online glossary, which can be used by states for competition, and by competitors to practice. Individuals can use the discount code TABERS4HOSA for a 20% discount and free shipping. Advisors or schools who would like to inquire about purchasing class sets or school copies please us the following link: https://www.fadavis.com/highschool

Round One Virtual Online Test

5. **Test Instructions:** The online test will consist of 50 multiple choice items in a maximum of 60 minutes.

6. **Sample Test Questions**

   1. What is an obstructing infection in a renal pelvis or ureter?
      
      A. Pilonefritis
      
      B. **Pyonephrosis**
      
      C. Pilonephritis
      
      D. Pyonefrosis

      Taber’s pp 1973
2. Which term refers to a specialist in diseases of the nervous system?
   A. Neuralogist
   B. Neologist
   C. **Neurologist**
   D. Nurologist
   Taber’s pp 1627

3. What is the term for the act of swallowing?
   A. **Deglutition**
   B. Digluation
   C. Deglutation
   D. Diglutition

**Final Scoring**

7. The competitor with the highest test score will be declared the winner. In the event that test scores are the same, there will be a tie breaker formula to determine the first, second and third place winners.
Medical Terminology provides members with the opportunity to gain knowledge and skills regarding prefixes, suffixes, roots and anatomy, physiology, pathophysiology and occupations related to the health field. This competitive event consists of an online test and aims to inspire members to learn about terms common to health professions and health specialties.

General Rules

1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing.
2. Middle School, Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.
3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

Official References


Virtual Online Test

4. Test Instructions: The online test will consist of 100 multiple choice items in a maximum of 90 minutes.
5. A series of twenty (20) tie-breaking questions will be administered with the original test for the Postsecondary/Collegiate division. In case of a tie, successive sets of five tie-breaker questions will be used until a winner is determined. In the tie-breaker, correct spelling is required for an item to be considered correct.
6. Online Test Plan: Roots, prefixes, suffixes, and combining forms 45%
   Overview of Body 5%
   Skeletal 5%
   Muscular 5%
   Respiratory 5%
   Digestive 5%
   Cardiovascular & Lymphatic 5%
   Nervous/Special Senses 5%
Endocrine 5%
Reproductive 5%
Integumentary 5%
Urinary 5%

7. Sample Test Questions

1. What is the study of the structure, composition and function of body tissues?
   A. Biology
   B. Cytology
   C. Endocrinology
   **D. Histology**
   Ehrlich pp 38

2. What is the meaning of the term hysterectomy?
   A. Cryosurgery of the ovaries.
   **B. Surgical removal of the uterus and cervix.**
   C. Rupture of the uterus.
   D. Suturing of the fallopian tubes.
   Stedman’s pp 615

3. Which suffix refers to breathing?
   A. -cide
   B. -ion
   **C. -pnea**
   D. -stasis
   Ehrlich pp 531

**Final Scoring**

8. Final rank is determined by the test score. In case of a tie, the tie-breaking questions will be used to determine the rank.
**Event Summary**

The Nutrition test provides HOSA members with the opportunity to explore and learn about the relationship of nutrition and wellness and to assess knowledge common in this health field. *This competitive event consists of an online test with a tie-breaker essay question.* This event aims to inspire members to be proactive future health professionals and to apply and analyze information related to nutrition and health.

**General Rules**

1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing.

2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.

3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

**Official References**


**Virtual Online Test**

4. **Test Instructions:** The online test will consist of 100 multiple choice items in a maximum of 90 minutes.

5. One essay question will be administered with the original test. In case of a tie, the essay question will be judged and used to break the tie.

6. The online test plan for Nutrition is:

   - Carbohydrates, fats and proteins 15%
   - Vitamins & minerals 15%
   - Water (Fluid & electrolyte balance) 10%
   - Nutrition through the life span 15%
   - Digestion, absorption and metabolism 10%
   - Cultural and religious influences 5%
   - Food related illnesses and allergies 10%
   - Medical nutrition therapy 20%
     - Diabetes
     - Cardiovascular disease
     - Renal disease
     - Gastrointestinal disease
     - Cancer
     - Clients with special needs
7. Sample Test Questions

1. Lactose, maltose and sucrose belong to which type of carbohydrate group?
   - A. Disaccharides
   - B. Liposaccharides
   - C. Monosaccharides
   - D. Polysaccharides
   Roth pp 66

2. Which body organ has no stored supply of glucose and requires a minute-to-minute supply from the blood?
   - A. Heart
   - B. Liver
   - C. Brain
   - D. Pancreas
   Nix pp 21

3. Diets high in cholesterol and saturated fats are thought to contribute to which condition?
   - A. Diabetes mellitus
   - B. Atherosclerosis
   - C. Hypertension
   - D. Macular degeneration
   Roth pp 244

Final Scoring

8. Final rank is determined by the test score. In case of a tie, the essay question will be used to determine the rank.
Event Summary
Pathophysiology provides members with the opportunity to gain knowledge and skills regarding pathophysiology concepts. This competitive event consists of an online test with a tie-breaker essay question. This event aims to inspire members to learn about the anatomy and physiology of human diseases impacting the health community.

General Rules
1. Competitors in this event must be active members of HOSA-Future Health Professionals and in good standing.
2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.
3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

Official References

Virtual Online Test
4. Test Instructions: The online test will consist of 100 multiple choice items in a maximum of 90 minutes.
5. One essay question will be administered with the original test. In case of a tie, the essay question will be judged and used to break the tie.
6. The online test plan for Pathophysiology is:
   - Disease Process and Terminology (Including cancer and neoplasms) 12%
   - Body Systems:
     - Integumentary 8%
     - Musculoskeletal 10%
     - Heart 8%
     - Blood vessels 4%
     - Lymphatic 6%
     - Respiratory 8%
     - Digestive 12%
     - Endocrine 8%
     - Nervous (including senses) 12%
     - Reproductive 6%
     - Urinary 6%
7. **Sample Test Questions**

1. The primary cause of osteomalacia is a deficiency or ineffective use of which nutrient?
   - A. Calcium
   - B. Vitamin A
   - C. Iodine
   - D. Vitamin D
     Frazier pp 341

2. Which type of shock is caused by a severe allergic reaction?
   - A. **Anaphylactic**
   - B. Cardiogenic
   - C. Hypovolemic
   - D. Neurogenic
     Zelman pp 107

3. What neurotransmitter is produced in insufficient quantities in a patient with Parkinson's disease?
   - A. Aldosterone
   - B. **Dopamine**
   - C. Gamma globulin
   - D. Prednisone
     Frazier pp 724

**Final Scoring**

8. Final rank is determined by the test score. In case of a tie, the essay question will be used to determine the rank.
**Event Summary**

Pharmacology provides HOSA members with the opportunity to gain knowledge and skills regarding the area of healthcare concerned with uses, effects, and modes of actions of drugs. This competitive event consists of an online test with a tie-breaker essay question. This event aims to inspire members to learn about how drugs work in the body, proper administration, and adaptations for different patients and conditions.

**General Rules**

1. Competitors in this event must be active members of HOSA-Future Health Professionals, in good standing.

2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.

3. Competitors must be familiar with and adhere to the “General Rules and Regulations of the HOSA Competitive Events Program (GRR).”

**Official References**


**Virtual Online Test**

4. **Test Instructions:** The online test will consist of 100 multiple choice items in a maximum of 90 minutes.

5. One essay question will be administered with the original test. In case of a tie, the essay question will be judged and used to break the tie.

6. The online test plan for Pharmacology is:
   Safety will be integrated throughout the test plan
   - Basic Concepts in Pharmacology 12%
   - Career Opportunities in Pharmacology 3%
   - Ethical and Legal Responsibilities 10%
   - Pediatrics and Geriatrics Adaptations 10%
   - Drug Names, Classifications, Action, and Interactions 30%
   - Drug Administration 20%
   - Drug Measurement, Dosage, Conversions 10%
   - Technologies in Pharmacology 5%
7. **ROUNDING:** When rounding decimal numbers to the nearest tenths, hundredths, or thousandths, 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 to the position 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).

**NOTE:** States/regions may use a different process for testing, to include but not limited to pre-conference testing, online testing, and testing at a computer. Check with your Area/Region/State for the process you will be using.

8. **Sample Test Questions**

1. What federal legislation established funding for research of potentially dangerous drugs in the treatment of rare chronic illnesses?
   - 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**
     Fulcher pp 9

2. The client who has been taking salicylates for a long period of time should be watched closely for which of the following adverse reactions?
   - A. **GI bleeding**
   - B. Fever of undetermined origin
   - C. Hypotension
   - D. Diminished urinary output
     Ford pp 151

3. 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?
   - A. 16 mL
   - B. **20 mL**
   - C. 40 mL
   - D. 50 mL
     Fulcher pp 131

**Final Scoring**

9. Final rank is determined by the test score. In case of a tie, the essay question will be used to determine the rank.