



TEXAS EDUCATOR CERTIFICATION

TE_xES | TE_xMaT | TASC/TASC-ASL

Texas Examinations of Educator Standards™ (TE_xES™) Program

Preparation Manual

Health Science 6–12 (273)



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About The Test

Test Name	Health Science 6–12
Test Code	273
Time	5 hours
Number of Questions	100 multiple-choice questions
Format	Computer-administered test (CAT)

The TExES Health Science 6–12 (273) test is designed to assess whether a test taker has the requisite knowledge and skills that an entry-level educator in this field in Texas public schools must possess. The 100 multiple-choice questions are based on the Health Science 6–12 test framework and cover grades 6–12. The test may contain questions that do not count toward the score.

The number of scored questions will not vary; however, the number of questions that are not scored may vary in the actual test. Your final scaled score will be based only on scored questions.

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The Domains

Domain	Domain Title	Approx. Percentage of Test	Standards Assessed
I.	Academic Foundations	19%	Health Science 6–12: I
II.	Medical Sciences	19%	Health Science 6–12: I
III.	Occupational Knowledge	43%	Health Science 6–12: I, III, IV, VI
IV.	Professional Responsibilities	19%	Health Science 6–12: II, V, VII–X

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The Standards

Health Science 6–12 Standard I

Academics: The health science teacher is proficient in the academic subjects needed to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) for Health Science Technology Education.

Health Science 6–12 Standard II

Communication: The health science teacher demonstrates proficiency in verbal and nonverbal communication skills.

Health Science 6–12 Standard III

Health and Wellness: The health science teacher applies the concept of wellness and the fundamentals of disease prevention to promote healthy behaviors.

Health Science 6–12 Standard IV

Health Care Systems: The health science teacher understands the roles of health care workers and the function of the diagnostic, therapeutic, informational and environmental systems of health care.

Health Science 6–12 Standard V

Employability: The health science teacher uses his or her professional work experience in the health care delivery system to help prepare students for successful careers in the health care industry.

Health Science 6–12 Standard VI

Safety: The health science teacher understands industry safety policies, safety procedures and preventive measures to minimize injury and illness.

Health Science 6–12 Standard VII

Ethical and Legal Issues: The health science teacher understands the ethical and legal responsibilities of health care workers.

Health Science 6–12 Standard VIII

Teaming: The health science teacher understands the importance of teaming and leadership skills in providing both quality client health care and effective student instruction.

Health Science 6–12 Standard IX

Partnerships: The health science teacher understands the importance of developing partnerships with parents/guardians, industry, education institutions and the community to enhance student learning and strengthen the health science technology education program.

Health Science 6–12 Standard X

Professional Development: The health science teacher understands the importance of lifelong learning and continuing professional development.

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Domains and Competencies

The content covered by this test is organized into broad areas of content called **domains**. Each domain covers one or more of the educator standards for this field. Within each domain, the content is further defined by a set of **competencies**. Each competency is composed of two major parts:

- The **competency statement**, which broadly defines what an entry-level educator in this field in Texas public schools should know and be able to do.
- The **descriptive statements**, which describe in greater detail the knowledge and skills eligible for testing.

Domain I – Academic Foundations

Competency 001: *The teacher understands major trends in the history of health care and the impact of health care on society.*

The beginning teacher:

- A. Knows major historical events in the development of health care and understands their impact on society.
- B. Describes the economic impact of health services on society, the systems that finance health care in a free-enterprise economy and the features of different health care reform plans in the United States.
- C. Describes the changes in health care expenditure over time and factors that have contributed to rising costs in the health science industry.
- D. Describes the contrasting health problems in developing and developed countries.
- E. Identifies age and cultural influences that impact health care delivery.
- F. Compares and contrasts strategies used by different cultures to solve health-related problems.
- G. Describes the roles of individuals and organizations (e.g., the Centers for Disease Control and Prevention, the United States Department of Health and Human Services, the World Health Organization) in the prevention and containment of disease in a global society.
- H. Identifies the impact of technological advances on health care and analyzes issues related to the appropriate use of technological resources.

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Competency 002: *The teacher applies academic skills to health science, understands scientific methods and the impact of scientific research on the health sciences, and organizes and communicates valid conclusions from experimental data.*

The beginning teacher:

- A. Solves mathematical problems relating to the health sciences.
- B. Uses the process of scientific inquiry and applies critical-thinking skills to solve problems.
- C. Applies basic principles of physics, chemistry and the biomedical sciences to analyze situations and solve problems.
- D. Documents, interprets and analyzes scientific and technical data related to health care.
- E. Distinguishes between scientific theory and hypothesis and analyzes, reviews and critiques strengths and weaknesses of hypotheses, theories and models using scientific evidence and information and draws valid conclusions.
- F. Knows that scientific theories are based on natural and physical phenomena and can be tested by multiple independent researchers. Unlike hypotheses, scientific theories are well established and highly reliable explanations, but they may be subject to change as new areas of science and new technologies are developed.
- G. Uses scientific information to make responsible choices in selecting everyday products and services.
- H. Plans and implements appropriate investigative procedures (e.g., asking questions, formulating testable hypotheses, selecting equipment and technology).
- I. Collects, organizes and displays experimental results using charts, tables and graphs.
- J. Analyzes data and makes inferences and predicts trends.
- K. Knows where to obtain and how to use available resources common to the health care profession.

Competency 003: *The teacher understands medical terminology related to health care and uses it appropriately.*

The beginning teacher:

- A. Identifies medical abbreviations, acronyms and symbols.
- B. Identifies the meaning of medical word prefixes, suffixes and roots.

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- C. Accurately interprets and transcribes medical vocabulary including the origins of eponyms.
 - D. Reports observations using medical terminology including words associated with medical specialties such as genetics, pathology and oncology.
 - E. Translates medical terms to conversational language.
 - F. Uses medical and dental dictionaries, multimedia resources and Internet sites.
 - G. Uses appropriate resources (e.g., texts, journals, reference manuals).
 - H. Knows how to plan, prepare and deliver a presentation.
 - I. Describes and reports information accurately according to facility policy, observations and procedures.

Domain II – Medical Sciences

Competency 004: *The teacher understands the anatomical structures of the human body and their relationship to the physiological functions and processes that maintain homeostasis.*

The beginning teacher:

- A. Relates physiological functions to anatomical structures within the body systems (including directional terms and anatomical planes related to body structures).
- B. Analyzes biological and chemical processes that maintain homeostasis.
- C. Analyzes the chemical reactions that provide energy for the body.
- D. Identifies the means, including the structure and function of the digestive system, by which nutrients are processed and energy is utilized or stored.
- E. Analyzes the effects of energy deficiencies in malabsorption disorders (e.g., diabetes, hypothyroidism, Crohn's disease) and energy excesses such as obesity.
- F. Analyzes and describes the effects of pressure, movement, torque, tension and elasticity on the human body.
- G. Explains how coordination of muscles, bones and joints allows movement of the body.
- H. Identifies and relates the changes in structures and functions of the body due to trauma, disease and environmental conditions.
- I. Describes the anatomy and physiology of the nervous system, including conduction systems (e.g., nerve transmission, muscle stimulation).
- J. Analyzes the physical, chemical and biological properties of the circulatory, respiratory and excretory transport systems and their interactions.

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- K. Identifies the functions of the male and female reproductive systems.
 - L. Describes the development of cells, tissues, organs and systems, including embryological development.
 - M. Describes the human development cycle.
 - N. Recognizes reemerging technologies such as stem cell research and cord blood utilization, bioengineering and transplant technology.
 - O. Conducts research on technological advances and limitations in the treatment of system disorders.

Competency 005: *The teacher understands the relationship between microorganisms and health and the role of microorganisms in infectious diseases.*

The beginning teacher:

- A. Describes the historical development of microbiology as it relates to health-care.
- B. Identifies the chemical processes, morphology and characteristics of microorganisms.
- C. Describes techniques (e.g., use of a microscope, preparation of bacterial cultures) used to identify microorganisms.
- D. Describes the factors required for microbial reproduction and growth.
- E. Identifies normal flora of the human body.
- F. Describes the infectious disease process (e.g., reservoir, mode of transmission, incubation period).
- G. Identifies pathogens of the human body.
- H. Explains the effects of antimicrobial agents.
- I. Examines the reemergence of diseases such as malaria, tuberculosis and polio.
- J. Describes drug-resistant diseases.

Competency 006: *The teacher understands the mechanisms of pathology, the process of pathogenesis, a variety of human diseases and the effects of disease prevention and control.*

The beginning teacher:

- A. Identifies biological and chemical processes at the cellular level.
- B. Associates disease processes with changes in homeostasis.

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- C. Identifies factors contributing to disease (e.g., age, gender, environment, lifestyle, heredity).
 - D. Describes stages in the progression of disease.
 - E. Identifies pathogenic organisms, mutations and neoplasms and their associated disease processes.
 - F. Recognizes the stages of pathogenesis (e.g., incubation, prodromal and symptomatic periods, exacerbation and remission).
 - G. Analyzes the body's natural defenses against infection, including inflammatory and immune system responses.
 - H. Explains the effects of chemical agents, environmental pollution and trauma on the disease process.
 - I. Identifies and describes congenital disorders and childhood diseases.
 - J. Analyzes public health issues related to asepsis, isolation, immunization and quarantine.
 - K. Compares treatment options for diseases.
 - L. Describes diseases that threaten world health.

Domain III – Occupational Knowledge

Competency 007: *The teacher understands the aging process, including the sociological implications and psychological effects of aging.*

The beginning teacher:

- A. Identifies the physiological and cognitive patterns of change in aging individuals.
- B. Analyzes the nutritional and pharmacological issues associated with aging.
- C. Describes the presentation of disease in older adults (e.g., heart attacks).
- D. Describes the myths regarding aging.
- E. Identifies cultural responses to aging.
- F. Describes and analyzes ethical issues regarding older adults.
- G. Analyzes the impact of a “graying” population on twenty-first-century health care.
- H. Describes and evaluates social services available to older adults.
- I. Identifies the psychological aspects of aging, including responses to death and dying.

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Competency 008: *The teacher understands foundations and therapeutic concepts of nutrition and social and cultural issues related to nutrition.*

The beginning teacher:

- A. Analyzes nutritional information, including that presented on food labels.
- B. Describes the nutritional needs of different populations (e.g., clients undergoing chemotherapy and radiation, clients of different ages).
- C. Describes how culture influences nutritional preferences.
- D. Assesses clients' nutritional needs.
- E. Describes eating disorders (e.g., anorexia, bulimia) and how they affect individuals.
- F. Identifies therapeutic diets.
- G. Describes food additives and food allergies.
- H. Describes the roles of vitamins and vitamin supplements.
- I. Describes the relationship between nutrition and world health.
- J. Describes the impact of government services and regulatory agencies on nutrition.
- K. Identifies alternative methods of nutrition (e.g., macrobiotic diets, antioxidants).

Competency 009: *The teacher understands the concepts of and the technology used in pharmacology.*

The beginning teacher:

- A. Uses drug reference materials (e.g., the Physicians' Desk Reference [PDR], inserts in drug packaging).
- B. Describes instructions related to drug administration (e.g., taking medicine on an empty stomach, spacing of daily doses).
- C. Identifies drug names, classifications, actions and interactions.
- D. Identifies indications and contraindications of drugs.
- E. Identifies side effects and toxic effects of drugs as well as adverse reactions to drugs.
- F. Identifies routes of drug administration.
- G. Describes the differences between generic and brand-name drugs.
- H. Describes importance of clinical trials of new drugs and compares and contrasts different types of clinical trials.

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- I. Describes importance of sample size in clinical trials and how to calculate sample sizes.
 - J. Compares and contrasts drugs approved by the Food and Drug Administration (FDA) with alternative medicines.
 - K. Uses technology to access, process and retrieve information.

Competency 010: *The teacher understands the concepts of, and social and cultural issues related to, mental health.*

The beginning teacher:

- A. Describes the psychological aspects of health and wellness across the life span.
- B. Describes pathophysiology of the nervous system.
- C. Identifies the physiological aspects of stress.
- D. Identifies the symptoms of maladaptive conditions (e.g., paranoia, schizophrenia, aggression, depression).
- E. Describes treatment options (e.g., psychotherapy, medication, behavior modification) for a variety of mental health problems.
- F. Identifies societal perspectives and socioeconomic factors as they affect mental health.
- G. Describes the role of social services (e.g., drug dependency rehabilitation centers).

Competency 011: *The teacher understands the fundamentals of wellness and disease prevention and the importance of preventive health behaviors.*

The beginning teacher:

- A. Relates concepts of health and wellness to each phase of the life span and to disease prevention and risk management.
- B. Identifies human needs according to Maslow's Hierarchy of Human Needs.
- C. Identifies warning signs of disease and explains the importance of early detection.
- D. Explains the relationship between nutrition, disease and the quality of life.
- E. Evaluates wellness strategies for the prevention and control of disease, such as maintaining positive relationships with friends, family and peers.
- F. Analyzes health-related social issues (e.g., access to health care, organ donation, religious beliefs).
- G. Analyzes risk factors for and consequences of unhealthy behaviors.

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- H. Promotes healthy behaviors and suggests wellness strategies, products, information and services.
 - I. Evaluates information and products related to traditional and alternative health care.

Competency 012: *The teacher understands the skills and roles of health care workers and the functions of the diagnostic, therapeutic, informational and environmental systems of health care.*

The beginning teacher:

- A. Describes the uses of appropriate technology (e.g., ultrasound, magnetic resonance imaging, X-rays, other diagnostic tests) and equipment (e.g., electrocardiograph) used in the delivery of health care.
- B. Provides opportunities for the students to observe therapeutic and diagnostic procedures and pre-procedural preparations.
- C. Assesses and monitors client health status and accurately measures, records and interprets vital signs, according to facility protocol, throughout the life span.
- D. Describes how to safely move, lift and transport patients.
- E. Assesses client nutrition and hygiene.
- F. Demonstrates skills associated with activities of daily living and rehabilitative care and identifies care indicators of health status.
- G. Uses appropriate protocols, procedures and technology for the collection and dissemination of client health care data.
- H. Identifies client privacy issues and is familiar with the patient Privacy Rule and the Health Insurance Portability and Accountability Act (HIPAA).

Competency 013: *The teacher understands the importance of maintaining a safe environment and knows the roles of regulatory agencies, including safety policies, procedures and standard precautions, as they relate to health care workers and controlling the spread of infection.*

The beginning teacher:

- A. Evaluates environments for personal and client safety and reports equipment or technology malfunctions.
- B. Identifies fire prevention procedures according to facility protocol.
- C. Describes appropriate responses to emergencies and other stressful situations such as trauma, chronic illness and terminal illness (e.g., triage, first aid, cardiopulmonary resuscitation).

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- D. Identifies and explains the principles of body mechanics that minimize personal and client injury.
 - E. Describes protocols related to recycling, waste management for cost containment, and handling chemicals and hazardous materials for environmental protection.
 - F. Identifies the possible roles of chemical, biological and radiological agents in man-made and natural environmental disasters.
 - G. Knows procedures related to preparedness for disasters (e.g., hurricanes, floods, ice storms, terrorist attacks).
 - H. Describes the cycle of the infectious process.
 - I. Describes and explains the use of standard precautions to prevent nosocomial infections.
 - J. Identifies, describes and demonstrates universal protection guidelines (e.g., levels of protection, appropriate equipment) for the personal protection of health care workers.
 - K. Compares the functions of regulatory agencies (e.g., the Occupational Safety and Health Administration, the Food and Drug Administration, the Centers for Disease Control and Prevention).
 - L. Describes school, laboratory and workplace safety policies and procedures and follows safe and responsible practices in laboratory investigations and fieldwork.

Domain IV – Professional Responsibilities

Competency 014: *The teacher communicates appropriately in medical environments and understands the importance of teaming and leadership skills and of developing partnerships within the health care community.*

The beginning teacher:

- A. Adapts communication to the needs (e.g., physical, psychological, cultural) of individuals in a diverse society.
- B. Describes the importance of accurate communication with clients and members of the health care team and effectively conducts and participates in meetings.
- C. Analyzes client data, records and technical reports.
- D. Describes appropriate communication skills in a variety of settings (e.g., over the phone, in reception areas, during interactions with clients, during work with other medical staff) and supervises electronic modes of communication such as e-mail, instant messaging, and e-signature.
- E. Describes how the health care team uses teaming skills to provide quality health care.

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- F. Identifies the collaborative roles of team members in delivering quality health care.
 - G. Describes the skills, characteristics and responsibilities of leaders and group members.
 - H. Explains the benefits of positive relationships among health professionals in promoting a healthy community.
 - I. Describes importance of healthy professional relationships to achieving career goals.
 - J. Uses problem-solving skills to negotiate and resolve conflicts and refine consensus-building techniques.
 - K. Uses community resources for the benefit of students (e.g., involving parents/guardians in student learning and career development and inviting health care professionals to participate in the formal instruction of students).
 - L. Uses partnerships to prepare students for the transition from secondary to postsecondary education and to provide quality work-based learning opportunities (i.e., paid and unpaid) that are specific to health science professions, such as medical assistant, dental assistant, emergency medical technician-basic, phlebotomy technician and pharmacy technician.

Competency 015: *The teacher prepares students for successful careers in the health care industry and understands the importance of lifelong learning and continuing professional development.*

The beginning teacher:

- A. Identifies professional characteristics of health care workers.
- B. Locates, evaluates, and interprets career options, employment information and career enhancement opportunities within the diagnostic, therapeutic, health informatics, support services and biotechnology research and development systems and describes the procedures necessary to seek, secure and maintain employment.
- C. Guides students to prepare a professional portfolio and present it to interested stakeholders.
- D. Identifies and promotes productive work habits such as punctuality, regular attendance and time management.
- E. Guides students to set realistic career and educational goals based on personal interests, aptitudes and lifestyles.
- F. Identifies new and emerging careers in health care.
- G. Uses the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) for Health Science Technology Education to plan academic achievement for advancement in the health science industry.

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- H. Integrates new and emerging technology into the curriculum and selects a variety of appropriate resources (e.g., professional publications and journals) when preparing lessons.
 - I. Describes the advantages of participating in professional development opportunities that address topics related to health care and facilitate the transfer of knowledge and skills from health care professionals to students.

Competency 016: *The teacher understands the ethical and legal responsibilities of health care workers.*

The beginning teacher:

- A. Describes ethical behavior.
- B. Recognizes the necessity of client confidentiality.
- C. Explains the protocols and legal requirements of the health care industry within a designated scope of practice.
- D. Describes the purpose and use of policy and procedure manuals.
- E. Identifies clients' rights and health care options.
- F. Identifies and analyzes issues related to malpractice, negligence and liability.
- G. Describes the effects of unethical practices on consumers and analyzes court cases related to professional liability and ethics.
- H. Identifies circumstances that affect clients' rights (e.g., living will, durable power of attorney).
- I. Analyzes issues related to death and dying.

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Approaches to Answering Multiple-Choice Questions

The purpose of this section is to describe multiple-choice question formats that you will typically see on the Health Science 6–12 test and to suggest possible ways to approach thinking about and answering them. These approaches are intended to supplement and complement familiar test-taking strategies with which you may already be comfortable and that work for you. Fundamentally, the most important component in assuring your success on the test is knowing the content described in the test framework. This content has been carefully selected to align with the knowledge required to begin a career as a Health Science 6–12 teacher.

The multiple-choice questions on this test are designed to assess your knowledge of the content described in the test framework. In most cases, you are expected to demonstrate more than just your ability to recall factual information. You may be asked to think critically about the information, to analyze it, consider it carefully, and compare it with other knowledge you have or make a judgment about it.

Leave no questions unanswered. Questions for which you mark no answer are counted as incorrect. Your score will be determined by the number of questions you answer correctly.

The Health Science 6–12 test is designed to include a total of 100 multiple-choice questions, out of which 80 are scored. The number of scored questions will not vary; however, the number of questions that are not scored may vary in the actual test. Your final scaled score will be based only on scored questions. The questions that are not scored are being pilot tested to collect information about how these questions will perform under actual testing conditions. These pilot questions are not identified on the test.

How to Approach Unfamiliar Question Formats

Some questions include introductory information such as a table, graph or reading passage (often called a stimulus) that provides the information the question asks for. New formats for presenting information are developed from time to time. Tests may include audio and video stimulus materials such as a movie clip or some kind of animation, instead of a map or reading passage. Other tests may allow you to zoom in on the details in a graphic or picture.

Tests may also include interactive types of questions. These questions take advantage of technology to assess knowledge and skills that go beyond what can be assessed using standard single-selection multiple-choice questions. If you see a format you are not familiar with, **read the directions carefully**. The directions always give clear instructions on how you are expected to respond.

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For most questions, you will respond by clicking an oval to choose a single answer choice from a list of options. Other questions may ask you to respond by:

- **Selecting all that apply.** In some questions, you will be asked to choose all the options that answer the question correctly.
- **Typing in an entry box.** When the answer is a number, you might be asked to enter a numeric answer or, if the test has an on-screen calculator, you might need to transfer the calculated result from the calculator into the entry box. Some questions may have more than one place to enter a response.
- **Clicking check boxes.** You may be asked to click check boxes instead of an oval when more than one choice within a set of answers can be selected.
- **Clicking parts of a graphic.** In some questions, you will choose your answer by clicking on location(s) on a graphic such as a map or chart, as opposed to choosing from a list.
- **Clicking on sentences.** In questions with reading passages, you may be asked to choose your answer by clicking on a sentence or sentences within the reading passage.
- **Dragging and dropping answer choices into “targets” on the screen.** You may be asked to choose an answer from a list and drag it into the appropriate location in a table, paragraph of text or graphic.
- **Selecting options from a drop-down menu.** This type of question will ask you to select the appropriate answer or answers by selecting options from a drop-down menu (e.g., to complete a sentence).

Remember that with every question, you will get clear instructions on how to respond.

Question Format

You will see multiple-choice questions in the single-question format on this test. On the following pages, descriptions of this commonly used question format, along with suggested approaches for responding to each question, are provided.

Single Questions

The single-question format presents a direct question or an incomplete statement. It can also include a reading passage, graphic, table or a combination of these. Four or more answer options appear below the question.

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The following question is an example of the single-question format. It tests knowledge of Health Science 6–12 Competency 006: *The teacher understands the mechanisms of pathology, the process of pathogenesis, a variety of human diseases, and the effects of disease prevention and control.*

Example

1. Which of the following statements accurately describes the current status of tuberculosis as a threat to world health?
 - A. Tuberculosis can be effectively treated and remains a significant threat only in countries with arid climates.
 - B. Tuberculosis remains a significant threat to world health because it continues to evolve and resist the drugs created to combat it.
 - C. Tuberculosis currently represents a significant threat only to individuals who are undernourished or have compromised immune systems.
 - D. Tuberculosis has been effectively eradicated in most countries and no longer constitutes a significant threat to world health.

Suggested Approach

Read the question carefully and critically. Think about what it is asking and the situation it is describing. Eliminate any obviously wrong answers, select the correct answer choice and mark your answer.

Tuberculosis is a disease that has historically been a significant health problem for urbanized human societies. This question asks for up-to-date knowledge of tuberculosis in the modern world. Look at the response options and consider which of them best describes the status of this disease as a threat to world health.

Option A states that tuberculosis can be effectively treated, which is true. However, it is not true that it remains a significant threat only in countries with arid climates. Tuberculosis is worldwide and remains an important health threat in developing countries, particularly in communities with high population density and poor public hygiene. Option A is not accurate.

Option B states that tuberculosis remains a threat to world health and continues to evolve and resist the drugs created to combat it. This is true. Not only is tuberculosis endemic throughout much of the world today, but the bacteria that cause it are becoming resistant to the antibiotics that have been used to treat it successfully in the past. Option B is the best response.

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Option C states that tuberculosis represents a significant health threat only to individuals who are undernourished, or have compromised immune systems (such as those infected with the HIV virus). However, tuberculosis is by no means limited to those risk groups. In the modern world it is endemic in many developing countries with high density populations that live in urban environments with inadequate sanitation, hygiene and public health care. Option C is not an accurate response.

Option D states that tuberculosis has been effectively eradicated in many countries and is no longer a significant threat to world health. Tuberculosis remains a worldwide threat to human health, and in fact is an increasing problem, particularly in developing countries. Option D is not correct.

Of the alternatives offered, only option B is accurate. Therefore, **the correct response is option B.**

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Multiple-Choice Practice Questions

This section presents some sample test questions for you to review as part of your preparation for the test. To demonstrate how each competency may be assessed, each sample question is accompanied by the competency that it measures. While studying, you may wish to read the competency before and after you consider each sample question. Please note that the competency statements do not appear on the actual test.

For each sample test question, there is at least one correct answer and a rationale for each answer option. Please note that the sample questions are not necessarily presented in competency order.

The sample questions are included to illustrate the formats and types of questions you will see on the test; however, your performance on the sample questions should not be viewed as a predictor of your performance on the actual test.

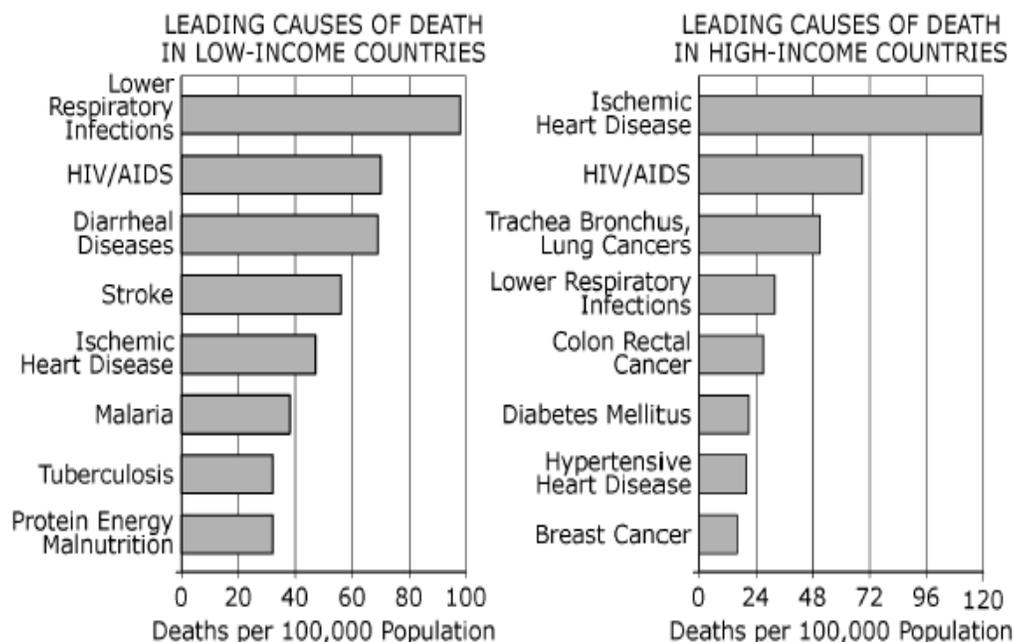
NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 001

1. John Snow, M.D., traced the source of the London cholera epidemic of 1854 to a public water pump. When the pump handle was dismantled, the epidemic was brought under control. In recognition of his efforts, he is regarded as the founder of
 - A. the germ theory.
 - B. immunology.
 - C. sewage treatment engineering.
 - D. epidemiology.

Answer and Rationale

COMPETENCY 001



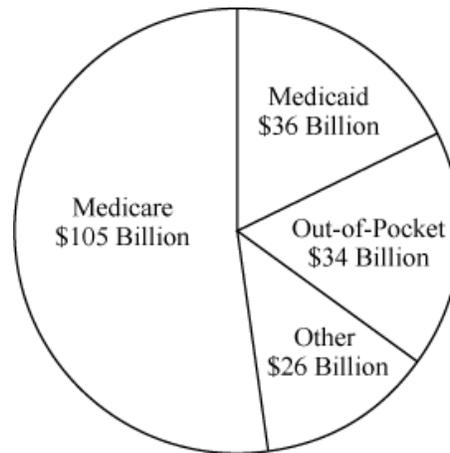
2. Based on the graphs above, compared to high income countries, an individual in a low-income country is more likely to die from
 - A. breast cancer.
 - B. colon cancer.
 - C. infectious diseases.
 - D. ischemic heart disease.

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 001

PERCENTAGE OF MONEY PAID FOR TREATMENT OF ALZHEIMER'S DISEASE IN 2012



3. Based on the graph, treatment for a patient with Alzheimer's disease in 2012 was primarily paid by
- A. personal insurance plans.
 - B. government sources.
 - C. the patient.
 - D. the patient's family.

Answer and Rationale

COMPETENCY 001

4. Louis Pasteur's contributions are most often associated with which of the following?
- A. The practice of hand washing
 - B. The introduction of the smallpox vaccine
 - C. The development of the germ theory of disease
 - D. The discovery of the tuberculosis bacteria

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 001

5. Gregor Mendel discovered genetic inheritance patterns using
- A. mice.
 - B. squash.
 - C. pumpkins.
 - D. garden peas.

Answer and Rationale

COMPETENCY 003

6. The correct medical term for blood in the urine is
- A. hematoma.
 - B. hemoglobin.
 - C. hemolysis.
 - D. hematuria.

Answer and Rationale

COMPETENCY 003

7. Which of the following is the best definition for plagiocephaly?
- A. Premature fusion of the coronal suture
 - B. Premature closure of the sagittal suture
 - C. A genetic bone-softening disease causing a malformation of the skull and facial bones
 - D. A condition caused by positional molding of the skull when infants are put to sleep on their back

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 004

8. Which of the following best explains why air from the atmosphere moves into the lungs?
- A. Contraction of the diaphragm increases the pressure inside the lungs, forcing air from the atmosphere into the lungs.
 - B. An increase in thoracic volume creates a more negative pressure in the lungs than that of the atmosphere.
 - C. Wave-like contractions of the trachea pump air from the atmosphere into the lungs.
 - D. Muscles attached to alveoli cause each alveolus to expand and hold more air from the atmosphere.

Answer and Rationale

COMPETENCY 004

9. The cardinal gaze test shows that the right eye cannot track in the temporal direction. Which cranial nerve is most likely affected?
- A. III
 - B. IV
 - C. VI
 - D. VII

Answer and Rationale

COMPETENCY 005

10. Which of the following are the causative agents of bovine spongiform encephalopathy (BSE) in cattle and Creutzfeldt-Jakob disease in humans?
- A. Prions
 - B. Bacteria
 - C. Viruses
 - D. Fungi

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 005

11. Which of the following antimicrobial agents interferes with bacterial cell wall synthesis?
- A. Sulfonamide
 - B. Penicillin
 - C. Tetracycline
 - D. Erythromycin

Answer and Rationale

COMPETENCY 005

12. In 1882, which of the following scientists discovered the causative organism for tuberculosis?
- A. Robert Koch
 - B. Joseph Lister
 - C. Louis Pasteur
 - D. Hans Jensen

Answer and Rationale

COMPETENCY 005

13. Which of the following is a bacterial species that is completely dependent on oxygen for respiration?
- A. Obligate anaerobe
 - B. Obligate aerobe
 - C. Aerotolerant anaerobe
 - D. Facultative anaerobe

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 006

14. Which of the following is produced as part of the nonspecific immune response?

- A. Neutrophils
- B. Helper T cells
- C. Cytotoxic T cells
- D. B lymphocytes

Answer and Rationale

COMPETENCY 007

15. Which of the following lists contain three cognitive disorders commonly seen in the elderly?

- A. Delirium, depression, dementia
- B. Sensory impairments, pain, medication use
- C. Cerebrovascular accidents, cancers, hypertension
- D. Loss of hearing, loss of visual acuity, loss of coordination

Answer and Rationale

COMPETENCY 007

16. Which of the following pharmacological drug-related issues is the leading cause of hospitalization and death in the elderly?

- A. Adverse drug reactions
- B. Alcohol abuse
- C. Illicit drug use
- D. Substitution of generic drugs for brand name drugs

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 008

17. Which of the following would most likely be attributed to a diet that is high in processed foods, contains large amounts of trans fats, and is low in fiber?
- A. Osteoporosis
 - B. Scurvy
 - C. Diabetes
 - D. Anemia

Answer and Rationale

COMPETENCY 008

18. Which of the following nutritional information is available on a Nutrition Facts label?
- A. Total fats, cholesterol
 - B. Product ingredients, allergens
 - C. Company producing the product, net weight
 - D. Refrigeration status, expiration date

Answer and Rationale

COMPETENCY 008

19. Which of the following includes only substances needed to calculate the amount of carbohydrates on a food label?
- A. Cholesterol and calories
 - B. Sodium and vitamins
 - C. Fat and protein
 - D. Fiber and sugars

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 008

20. Which of the following is an important clinical aspect of binge eating disorder?

- A. Electrolyte imbalances
- B. Use of laxatives or diuretics
- C. Intense fear of gaining weight
- D. Eating large amounts of food at one sitting

Answer and Rationale

COMPETENCY 008

21. Which THREE of the following food items would most likely cause discomfort for a patient who suffers from severe ulcerative colitis (inflammatory bowel disease)?

- A. Whole milk
- B. Peppered steak
- C. Mashed potatoes
- D. Fried fish

Answer and Rationale

COMPETENCY 009

22. Which of the following is the definition of t.i.d?

- A. Two times a day
- B. Every other day
- C. Three times a day
- D. Three pills every 4 to 6 hours

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 010

23. A patient in the ER experiences numbness and weakness in her right arm and slurred speech. After several hours, she recovers fully and has normal arm strength and speech patterns. Based on the symptoms the patient was experiencing, which of the following is the most likely diagnosis?
- A. Stroke
 - B. Epileptic seizure
 - C. Cerebral aneurysm
 - D. Transient ischemic attack

Answer and Rationale

COMPETENCY 012

24. One of the nurse's functions is to understand the various ways to assist a patient with mobility difficulties. Which of the following pieces of equipment is used to allow the patient to pull with their upper extremities to raise the trunk off the bed to assist in transferring the patient from the bed to a wheelchair?
- A. Footboard
 - B. Trapeze bar
 - C. Transfer belt
 - D. Trochanter roll

Answer and Rationale

COMPETENCY 012

25. A 45-year-old patient has a respiratory rate of 25 breaths per minute and a pulse rate of 123 beats per minute. Which of the following terms correctly describes this condition?
- A. Bradypnea and tachycardia
 - B. Tachypnea and tachycardia
 - C. Tachypnea and bradycardia
 - D. Bradypnea and bradycardia

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 013

26. Which THREE of the following are recommended safety practices in the laboratory?
- A. Tying back hair
 - B. Wearing goggles
 - C. Wearing open-toed shoes
 - D. Wearing protective mittens when handling hot containers

Answer and Rationale

COMPETENCY 014

27. According to the National Institute of Health (NIH), one of the behaviors of a team member is to clearly communicate parameters of delegated responsibility, including decision-making authority and required actions or deadlines. This statement best describes which of the following behaviors?
- A. Innovation
 - B. Adaptability
 - C. Collaboration
 - D. Accountability

Answer and Rationale

COMPETENCY 014

28. Which of the following lists correctly identifies the key characteristics that cohesive health care teams should exhibit?
- A. Clear goals with measurable outcomes, effective communication, and informed knowledge of pharmacology
 - B. Training of all team members, effective communication, and a clear concept of chronic care
 - C. Effective communication, understanding of insurance premiums, and clear goals with measurable outcomes
 - D. Training of all team members, effective communication, and clear goals with measurable outcomes

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 015

29. Which THREE of the following are personal characteristics of a health-care worker?

- A. empathetic
- B. polite
- C. resourceful
- D. a follower

Answer and Rationale

COMPETENCY 015

30. Which THREE of the following provides professional development opportunities related to health care?

- A. Donor agencies
- B. Nongovernmental organizations
- C. Academic institutions
- D. Consumer organizations

Answer and Rationale

COMPETENCY 016

31. Which of the following did Congress pass in 1996 that mandated both privacy and security regulations in the health care industry?

- A. Health Insurance Portability and Accountability Act (HIPAA)
- B. The Affordable Care Act (ACA)
- C. The Wagner National Health Act (WNHA)
- D. The McCarran-Ferguson Act (MFA)

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

COMPETENCY 016

32. An increase in malpractice premiums would most likely influence which THREE of the following decisions by a physician?
- A. Decisions on where to locate
 - B. Degree of professional development
 - C. Selection of insurance company
 - D. Charge for treatments to patients

Answer and Rationale

NOTE: After clicking on a link, right click and select "Previous View" to go back to original text.

Answer Key and Rationales

Question Number	Competency Number	Correct Answer	Rationales
1	001	D	<p>Option D is correct because Dr. Snow looked at the root cause of the cholera epidemic. Option A is incorrect because the germ theory explains the cause of disease. Option B is incorrect because immunology is the study of the body's defense system. Option C is incorrect because Dr. Snow is not the founder of sewage treatment.</p> <p>Back to Question</p>
2	001	C	<p>Option C is correct because an individual in a low-income country is more likely to die from lower respiratory infections, diarrheal diseases, malaria, or tuberculosis. Option A is incorrect because an individual in a low-income country is less likely to die from breast cancer. Option B is incorrect an individual in a low-income country is less likely to die from colon cancer. Option D is incorrect because an individual in a low-income country is less likely to die from ischemic heart disease.</p> <p>Back to Question</p>

Question Number	Competency Number	Correct Answer	Rationales
3	001	B	<p>Option B is correct because caring for a patient with Alzheimer’s Disease in 2012 was primarily paid for by government sources. Option A is incorrect because caring for a patient with Alzheimer’s Disease in 2012 was not primarily paid by personal insurance plans. Option C is incorrect because caring for a patient with Alzheimer’s Disease in 2012 was not primarily paid by the patient. Option D is incorrect because caring for a patient with Alzheimer’s Disease in 2012 was not primarily paid by the patient’s family.</p> <p>Back to Question</p>
4	001	C	<p>Option C is correct because Louis Pasteur’s contributions are most often associated with the germ theory of disease. Option A is incorrect because Joseph Lister’s contributions are most often associated with the practice of hand washing. Option B is incorrect because Edward Jenner’s contributions are most often associated with the smallpox vaccine. Option D is incorrect because Robert Koch’s contributions are most often associated with the discovery of the tuberculosis bacterium.</p> <p>Back to Question</p>
5	001	D	<p>Option D is correct because Gregor Mendel experimented with pea plants. Option A is incorrect because Gregor Mendel did not experiment with mice. Option B is incorrect because Gregor Mendel did not experiment with squash. Option C is incorrect because Gregor Mendel did not experiment with pumpkins.</p> <p>Back to Question</p>

Question Number	Competency Number	Correct Answer	Rationales
6	003	D	<p>Option D is correct because hematuria is the presence of red blood cells in urine. Option A is incorrect because a hematoma is a localized collection of blood outside the blood vessels. Option B is incorrect because hemoglobin is the iron-containing oxygen-transport compound in the red blood cells of all vertebrates. Option C is incorrect because hemolysis is the rupturing of erythrocytes.</p> <p>Back to Question</p>
7	003	D	<p>Option D is correct because plagiocephaly is caused by positional molding of the skull when infants are put to sleep on their backs. Option A is incorrect because the coronal suture is a dense, fibrous connective tissue joint that separates the frontal and parietal bones of the skull. Option B is incorrect because the sagittal suture is a dense, fibrous connective tissue joint between the two parietal bones of the skull. Option C is incorrect because plagiocephaly is not a bone-softening disorder.</p> <p>Back to Question</p>
8	004	B	<p>Option B is correct because an increase in thoracic volume creates a more negative pressure in the lungs than that of the atmosphere. Option A is incorrect because contraction of the diaphragm does not increase the pressure inside the lungs. Option C is incorrect because wave-like contractions of the trachea do not pump air from the atmosphere into the lungs. Option D is incorrect because muscles attached to alveoli do not cause each alveolus to expand.</p> <p>Back to Question</p>

Question Number	Competency Number	Correct Answer	Rationales
9	004	C	<p>Option C is correct because damage in cranial nerve VI causes impairment in the lateral rectus muscles. Option A is incorrect because cranial nerve III does not innervate the lateral rectus muscles. Option B is incorrect because cranial nerve IV does not innervate the lateral rectus muscles. Option D is incorrect because cranial nerve VII does not innervate the lateral rectus muscles.</p> <p>Back to Question</p>
10	005	A	<p>Option A is correct because bovine spongiform encephalopathy (BSE) results from infection by an agent called a prion. Option B is incorrect because bacteria cause diseases in cattle but not BSE. Option C is incorrect because viruses cause diseases in cattle but not BSE. Option D is incorrect because fungi cause diseases in cattle but not BSE.</p> <p>Back to Question</p>
11	005	B	<p>Option B is correct because Penicillin inhibits the formation of cell walls in bacterial cells. Option A is incorrect because Sulfonamide acts as competitive inhibitors of the enzyme dihydropteroate synthetase (DHPS). Option C is incorrect because Tetracycline is a protein inhibitor. Option D is incorrect because Erythromycin inhibits bacterial growth.</p> <p>Back to Question</p>

Question Number	Competency Number	Correct Answer	Rationales
12	005	A	<p>Option A is correct because Robert Koch discovered the causative organism for tuberculosis. Option B is incorrect because Joseph Lister is the pioneer of antiseptic surgery. Option C is incorrect because Louis Pasteur discovered principles of vaccination, microbial fermentation and pasteurization. Option D is incorrect because Hans Jensen was a physicist.</p> <p>Back to Question</p>
13	005	B	<p>Option B is correct because obligate aerobes are completely dependent on oxygen for respiration. Option A is incorrect because obligate anaerobes are killed by normal atmospheric oxygen concentrations. Option C is incorrect because aerotolerant anaerobes grow poorly in the presence of oxygen. Option D is incorrect because facultative anaerobes survive both in the presence and in the absence of oxygen.</p> <p>Back to Question</p>
14	006	A	<p>Option A is correct because neutrophils are the first nonspecific responders. Option B is incorrect because helper T cells help the activity of other immune cells and are a component of the specific immune response. Option C is incorrect because one of the functions of cytotoxic T cells is to kill cancer cells and they are a component of the specific immune response. Option D is incorrect because B lymphocytes make antibodies against antigens and they are a component of the specific immune response.</p> <p>Back to Question</p>

Question Number	Competency Number	Correct Answer	Rationales
15	007	A	<p>Option A is correct because delirium, depression, and dementia are cognitive disorders. Option B is incorrect because use of medicine is not a cognitive disorder. Option C is incorrect because cerebrovascular accidents, cancers, and hypertension are not cognitive disorders. Option D is incorrect because these are losses of senses not losses of mental abilities and processes.</p> <p>Back to Question</p>
16	007	A	<p>Option A is correct because of the pharmacological drug-related issues listed; adverse drug reactions are the leading cause of hospitalization and death in the elderly. Option B is incorrect because alcohol abuse is not the leading cause of hospitalization and death in the elderly. Option C is incorrect because illicit drug use is not the leading cause of hospitalization and death in the elderly. Option D is incorrect because the substitution of generic drugs for brand name drugs is not the leading cause of hospitalization and death in the elderly.</p> <p>Back to Question</p>
17	008	C	<p>Option C is correct because a diet that is high in processed foods, contains large amounts of trans fats, and is low in fiber leads to diabetes. Option A is incorrect because osteoporosis happens due to a lack of calcium in the diet. Option B is incorrect because a vitamin C deficiency causes scurvy. Option D is incorrect because an iron deficiency causes anemia.</p> <p>Back to Question</p>

Question Number	Competency Number	Correct Answer	Rationales
18	008	A	<p>Option A is correct because this information is available on the Nutrition Facts label. Option B is incorrect because allergens are not included on the Nutrition Facts label. Option C is incorrect because the company producing the product is not included on the Nutrition Facts label. Option D is incorrect because refrigeration status is not included on the Nutrition Facts label.</p> <p>Back to Question</p>
19	008	D	<p>Option D is correct because these carbohydrates combined are used to calculate total carbohydrate on a food label. Option A is incorrect because cholesterol and calories are not the total carbohydrate on a food label. Option B is incorrect because sodium and vitamins are not carbohydrates. Option C is incorrect because fat and protein are not carbohydrates.</p> <p>Back to Question</p>
20	008	D	<p>Option D is correct because eating large amounts of food at one sitting is an important clinical aspect of binge eating disorder. Option A is incorrect because electrolyte imbalances are common to Anorexia Nervosa. Option B is incorrect because use of laxatives is usually associated with Bulimia Nervosa. Option C is incorrect because an intense fear of gaining weight is associated with Anorexia Nervosa.</p> <p>Back to Question</p>

Question Number	Competency Number	Correct Answer	Rationales
21	008	A, B, D	<p>Option A, B and D are correct because dairy, meat and especially spicy meat, and fried fish can trigger flares. Option C is incorrect because mashed potatoes are least likely to trigger flares.</p> <p>Back to Question</p>
22	009	C	<p>Option C is correct because "t.i.d" means three times a day. Option A is incorrect because "t.i.d" does not mean two times a day. Option B is incorrect because "t.i.d" does not mean every other day. Option D is incorrect because "t.i.d" does not mean three pills every 4 to 6 hours.</p> <p>Back to Question</p>
23	010	D	<p>Option D is correct because these are symptoms of transient ischemic heart attack. Option A is incorrect because these are not symptoms of stroke because they only lasted for a few hours and the patient recovered fully. Option B is incorrect because these are not symptoms of epileptic seizure particularly because a seizure will not affect just one arm and speech only. Option C is incorrect because these are not symptoms of cerebral aneurysm which typically is severe and recovery will not be so quick.</p> <p>Back to Question</p>

Question Number	Competency Number	Correct Answer	Rationales
24	012	B	<p>Option B is correct because trapeze bars are an important patient room accessory designed to help patients change positions while in bed, and aid in the transfer from bed to chairs with minimum attendant assistance. Option A is incorrect because footboards keep sheets and blankets from touching and rubbing a patient’s legs or feet, keep their feet in proper position while they are in bed, and help with air circulation but are not an aid for transferring patient from bed to wheelchair. Option C is incorrect because a transfer belt is secured around the waist to allow a nurse to grasp the gait belt to lift or move a weak patient, such as from a bed to a chair. Option D is incorrect because trochanter rolls are used to prevent a patient’s legs from turning outward.</p> <p>Back to Question</p>
25	012	B	<p>Option B is correct because it describes fast breathing rate and fast pulse rate. Option A is incorrect because it describes slow breathing rate and fast pulse rate. Option C is incorrect because it describes fast breathing rate and slow pulse rate. Option D is incorrect because it describes slow breathing rate and slow pulse rate.</p> <p>Back to Question</p>
26	013	A, B, D	<p>Options A, B and D are correct because long dangling hair may be a laboratory hazard, one should always protect eyes and one should wear protective mittens when handling hot glassware. Option C is incorrect because open-toed shoes do not protect feet.</p> <p>Back to Question</p>

Question Number	Competency Number	Correct Answer	Rationales
27	014	D	<p>Option D is correct because accountability can be described as clearly communicating parameters of delegated responsibility. Option A is incorrect because innovation can be described as exploring new ideas. Option B is incorrect because adaptability can be described as understanding changes in work tasks. Option C is incorrect because collaboration can be described as working together, especially in a joint intellectual effort.</p> <p>Back to Question</p>
28	014	D	<p>Option D is correct because it describes three key characteristics that cohesive health-care teams should exhibit. Option A is incorrect because an informed knowledge of pharmacology is not a key characteristic. Option B is incorrect because a clear concept of chronic care is not a key characteristic. Option C is incorrect because understanding of insurance premiums is not a key characteristic.</p> <p>Back to Question</p>
29	015	A, B, C	<p>Options A, B and C are correct because a health care worker must be empathetic, a health care worker must be polite and a health care worker must be resourceful. Option D is incorrect because a health care worker should not be a follower.</p> <p>Back to Question</p>

Question Number	Competency Number	Correct Answer	Rationales
30	015	B, C, D	<p>Options B, C and D are correct because nongovernmental organizations may be involved in health care and provide professional development; because academic institutions will provide professional development and because consumer organizations related to health care will provide opportunities for professional development. Option A is incorrect because donor agencies do not have anything to do with health care.</p> <p>Back to Question</p>
31	016	A	<p>Option A is correct because HIPAA mandated privacy and security regulations. Option B is incorrect because ACA gives the American people the stability and flexibility they need to make informed choices about their health. Option C is incorrect because WNHA gave general support for a national health program to be funded by federal grants. Option D is incorrect because MFA exempts the insurance from corporations from most federal regulations.</p> <p>Back to Question</p>
32	016	A, C, D	<p>Options A, C and D are correct because an increase in malpractice premiums would most likely influence a physician's decisions on where to locate his/her choice of insurance companies and what the physician would charge for treatments to patients. Option B is incorrect because an increase in malpractice premiums would most likely not influence a physician's amount of professional development.</p> <p>Back to Question</p>

Preparation Resources

The resources listed below may help you prepare for the TExES test in this field. These preparation resources have been identified by content experts in the field to provide up-to-date information that relates to the field in general. You may wish to use current issues or editions to obtain information on specific topics for study and review.

OTHER RESOURCES

Badasch, S. A., Chesebro, D. S., and Weissman, J. S. (2004). *Introduction to Health Occupations: Today's Health Care Worker*. Sixth Edition. Upper Saddle River, N.J.: Pearson/ Prentice Hall.

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ONLINE RESOURCES

Centers for Disease Control and Prevention — <http://www.cdc.gov>

National Consortium on Health Science and Technology Education — <http://www.nchste.org>

Texas Health Science Technology Education — <http://www.texashte.com>

University of North Texas, Government Information Connection, K–12, Health Science Technology Education — <http://www.library.unt.edu>