



Preparation Manual

Health Science 6–12 (273)

Overview and Exam Framework
Sample Selected-Response Questions
Sample Selected-Response Answers and Rationales

Preparation Manual

Section 3: Overview and Exam Framework Health Science 6–12 (273)

Exam Overview

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

The TExES Health Science 6–12 (273) exam is designed to assess whether an examinee has the requisite knowledge and skills that an entry-level educator in this field in Texas public schools must possess. The 100 selected-response questions are based on the Health Science 6–12 exam framework and cover grades 6–12. The exam may contain questions that do not count toward the score. Your final scaled score will be based only on scored questions.

The Standards

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.

Standard II

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

Standard III

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

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.

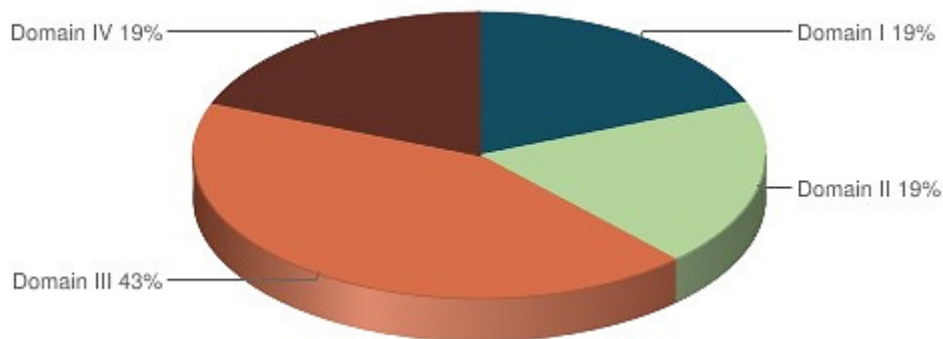
Standard V

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.

- Standard VI** Safety: The health science teacher understands industry safety policies, safety procedures and preventive measures to minimize injury and illness.
- Standard VII** Ethical and Legal Issues: The health science teacher understands the ethical and legal responsibilities of health care workers.
- 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.
- 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.
- Standard X** Professional Development: The health science teacher understands the importance of lifelong learning and continuing professional development.

Domains and Competencies

Domain	Domain Title	Approx. Percentage of Exam	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



The content covered by this exam 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:

- Knows major historical events in the development of health care and understands their impact on society.
- 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.
- Describes the changes in health care expenditure over time and factors that have contributed to rising costs in the health science industry.
- Describes the contrasting health problems in developing and developed countries.
- Identifies age and cultural influences that impact health care delivery.
- Compares and contrasts strategies used by different cultures to solve health-related problems.
- 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.
- Identifies the impact of technological advances on health care and analyzes issues related to the appropriate use of technological resources.

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:

- Solves mathematical problems relating to the health sciences.
- Uses the process of scientific inquiry and applies critical-thinking skills to solve problems.
- Applies basic principles of physics, chemistry and the biomedical sciences to analyze situations and solve problems.
- Documents, interprets and analyzes scientific and technical data related to health care.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

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.
- 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.
- 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).
- 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.
- 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.
- 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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Section 4: Sample Selected-Response Questions Health Science 6–12 (273)

This section presents some sample exam questions for you to review as part of your preparation for the exam. To demonstrate how each competency may be assessed, sample questions are accompanied by the competency that they measure. 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 exam.

For each sample exam question, there is a correct answer and a rationale for each answer option. The sample questions are included to illustrate the formats and types of questions you will see on the exam; however, your performance on the sample questions should not be viewed as a predictor of your performance on the actual exam.

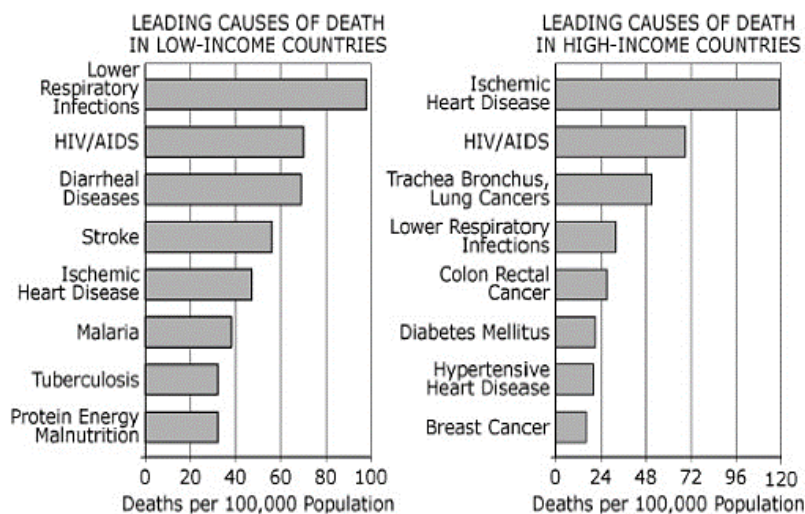
Domain I—Academic Foundations

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

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 _____

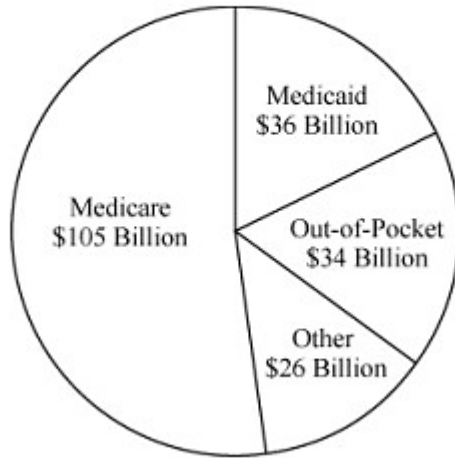


2. Based on the graphs above, compared to individuals in high-income countries, individuals in low-income countries are more likely to die from

- A. breast cancer.
- B. colon cancer.
- C. infectious diseases.
- D. ischemic heart disease.

Answer _____

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 _____

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

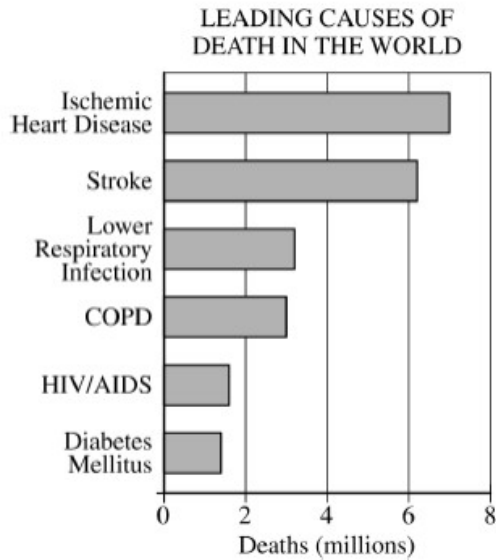
Answer _____

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.

5. A recent study by the Association of American Medical Colleges (AAMC) estimated that the United States will have a shortfall of more than 50,000 physicians by the year 2025. Based on the study's finding, which of the following statements provides the most reasonable prediction?

- A. Medical assistants will take the place of doctors in most cases.
- B. Health care will proceed as it has, with higher numbers of patients served by fewer doctors.
- C. Nurse practitioners will continue to grow in number and will have much more authority in the future.
- D. Physician assistants will take the place of doctors in most areas of diagnosis and prescription.

Answer _____



6. Based on the graph, which of the following conditions causes the most deaths worldwide?

- A. Ischemic heart disease
- B. Stroke
- C. Lower respiratory infection
- D. Chronic obstructive pulmonary disease (COPD)

Answer _____

7. Which of the following is a United States government report used to measure the effectiveness of health care in the United States?

- A. World Health Report
- B. National Healthcare Quality and Disparities Report
- C. CDC Health Disparities & Inequalities Report (CHDIR)
- D. National Health Insurer Report Card (NHIRC)

Answer _____

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

8. Which of the following terms best identifies the confusion, agitation, and aggressive behavior that individuals with dementia frequently experience in the late afternoon and early evening?

- A. Circadian rhythm
- B. Synucleinopathy
- C. Sleep apnea
- D. Sundown syndrome

Answer _____

9. The correct term for blood in the urine is

- A. hematoma.
- B. hemoglobin.
- C. hemolysis.
- D. hematuria.

Answer _____

10. 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 backs

Answer _____

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.

11. 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 _____

12. The cardinal gaze test shows that a patient's right eye cannot track in the temporal direction. Which cranial nerve is most likely affected?

- A. III
- B. IV
- C. VI
- D. VII

Answer _____

13. Which THREE of the following are classified as micronutrients?

- A. Vitamin A
- B. Iron
- C. Protein
- D. Zinc

Answer _____

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

14. Which of the following are the causative agents of bovine spongiform encephalopathy in cattle and Creutzfeldt-Jakob disease in humans?

- A. Prions
- B. Bacteria
- C. Viruses
- D. Fungi

Answer _____

15. Which of the following antimicrobial agents interferes with bacterial cell wall synthesis?

- A. Sulfonamide
- B. Penicillin
- C. Tetracycline
- D. Erythromycin

Answer _____

16. In 1882, which of the following scientists discovered the causative organism for tuberculosis?

- A. Robert Koch
- B. Joseph Lister
- C. Louis Pasteur
- D. J. Hans D. Jensen

Answer _____

17. Which of the following types of bacteria is completely dependent on oxygen for respiration?

- A. Obligate anaerobe
- B. Obligate aerobe
- C. Aerotolerant anaerobe
- D. Facultative anaerobe

Answer _____

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.

18. Which of the following are produced as part of the nonspecific immune response?

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

Answer _____

19. Which of the following cellular components primarily acts as a protein catalyst in facilitating molecular rearrangements important for cell function?

- A. An enzyme
- B. A lysosome
- C. Cytosol
- D. A ribosome

Answer _____

20. The time between the exposure to a pathogenic agent and the appearance of the first symptoms is the

- A. lag period.
- B. decline period.
- C. incubation period.
- D. prodromal period.

Answer _____

Domain III—Occupational Knowledge

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

21. The adverse effects of polypharmacy are much greater for people with which of the following?

- A. Gastrointestinal problems
- B. Skin conditions
- C. Hearing impairments
- D. Cardiovascular issues

Answer _____

22. Which of the following lists contains 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 _____

23. 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 _____

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

24. 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 _____

25. Information about which of the following is available on the Nutrition Facts label?

- A. Total fats and cholesterol
- B. Product ingredients and allergens
- C. Net weight and company producing the product
- D. Refrigeration status and expiration date

Answer _____

26. 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 _____

27. 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 _____

28. 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. Potatoes
- D. Fried fish

Answer _____

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

29. Which of the following methods of drug administration has the most immediate effect on the central nervous system?

- A. Oral
- B. Sublingual
- C. Intravenous
- D. Topical

Answer _____

30. A health science teacher shares a scenario in which an individual with a blood clot (deep vein thrombosis) is taking a blood-thinning medication. The teacher explains that the individual should not be asked to take aspirin primarily due to the risk of which of the following?

- A. Relative contraindication
- B. Absolute contraindication

- C. Relative standards
- D. Absolute standards

Answer _____

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

31. Which of the following is a symptom of the human body reacting to stress?

- A. Healing of open wounds is slower
- B. Hearing a ringing in the ears
- C. Aching pain due to tense muscles
- D. Having increased sexual desire or ability

Answer _____

32. A 22-year-old patient shows a recent change in personality, has a distorted perception of reality, and experiences disorganized thinking and speech but does not have any other physical symptoms. The patient most likely displays symptoms of which of the following disorders?

- A. Schizophrenia
- B. Dissociative identity disorder
- C. Major depressive disorder
- D. Antisocial personality disorder

Answer _____

33. 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 _____

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

34. Which of the following lifestyle choices is the largest contributor to death from preventable reasons in the United States?

- A. Drinking alcohol in excess
- B. Consuming a high-fat diet

- C. Smoking cigarettes
- D. Driving recklessly

Answer _____

35. Which of the following levels of Maslow's hierarchy of needs primarily deals with prestige and a feeling of accomplishment?

- A. Self-actualization
- B. Esteem needs
- C. Belonging and love needs
- D. Safety needs

Answer _____

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.

36. One of a 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 his or her 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 _____

37. 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 _____

38. Which of the following is a key component of the Health Insurance Portability and Accountability Act (HIPAA)?

- A. A patient can ask for an in-law's health records.
- B. A physician can give a patient's health information to his or her employer.
- C. A patient has the right to ask for and get a copy of his or her health records.
- D. A physician can share private notes about a patient's health care.

Answer _____

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.

39. Handling chemicals and hazardous materials involves following procedures for both general use and for specific chemical hazard groups. Which of the following handling procedures best describes a generic protocol to follow when handling chemicals?

- A. Using safety rubber bottle carriers or nonbreakable bottles for the transport of strong acids and bases
- B. Working with a peer in the laboratory and correctly labeling all used containers
- C. Storing the smallest possible amounts of toxic chemicals in established areas
- D. Ensuring that flammable liquids are stored only in containers that exceed one-quart capacity for purity

Answer _____

40. Which of the following elements of the cycle of infection primarily includes direct physical contact or contact with body fluids?

- A. Infectious agent
- B. Reservoir
- C. Portal of exit
- D. Transmission

Answer _____

41. 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 _____

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.

42. 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 _____

43. 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 _____

44. According to the National Institutes of Health (NIH) job competencies, expected responsibilities of a team member are to explore new ideas, methodologies, different positions, and alternatives to reach good outcomes.

These responsibilities best describe which of the following?

- A. Innovation
- B. Adaptability
- C. Collaboration
- D. Accountability

Answer _____

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.

45. Which THREE of the following are personal characteristics health-care workers should display to be most effective in their profession?

- A. Empathetic
- B. Polite
- C. Resourceful
- D. A follower

Answer _____

46. Which THREE of the following provide professional development opportunities related to health care?

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

Answer _____

47. Which THREE of the following are advantages of participating in continuous professional development opportunities related to health care?

- A. It encourages reflective practice.
- B. It allows a person to acquire new skills for a safe and effective practice.
- C. It allows a hospital administrator greater opportunity to transfer staff.
- D. It provides different types of formal and informal learning opportunities and support.

Answer _____

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

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

- A. The 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 _____

49. An increase in malpractice premiums would most likely influence which THREE of the following decisions by a physician?

- A. Decisions about where to locate the medical practice
- B. Degree of professional development
- C. Selection of insurance company
- D. Charge for treatments to patients

Answer _____

50. Which of the following is necessary for a medical power of attorney or health care proxy to begin making health care choices for a patient?

- A. The requirements depend on the particular laws of the state in which the patient resides.
- B. At least one physician must determine that the patient is unable to communicate effectively or make health care decisions independently.
- C. At least two physicians must determine that the patient is unable to communicate effectively or make health care decisions independently.
- D. The physician and the family members must agree that the patient is unable to communicate effectively or make health care decisions independently.

Answer _____

Preparation Manual

Section 4: Sample Selected-Response Answers and Rationales Health Science 6–12 (273)

This section presents some sample exam questions for you to review as part of your preparation for the exam. To demonstrate how each competency may be assessed, sample questions are accompanied by the competency that they measure. 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 exam.

For each sample exam question, there is a correct answer and a rationale for each answer option. The sample questions are included to illustrate the formats and types of questions you will see on the exam; however, your performance on the sample questions should not be viewed as a predictor of your performance on the actual exam.

Domain I—Academic Foundations

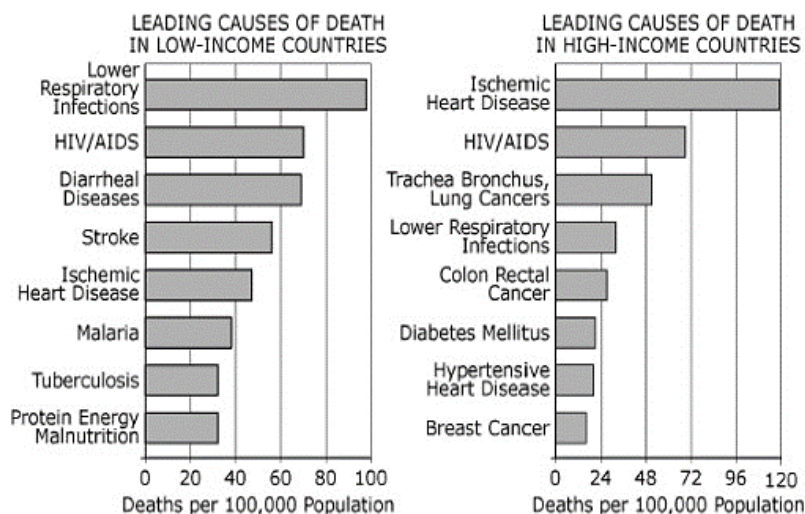
Competency 001—The teacher understands major trends in the history of health care and the impact of health care on society.

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

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.



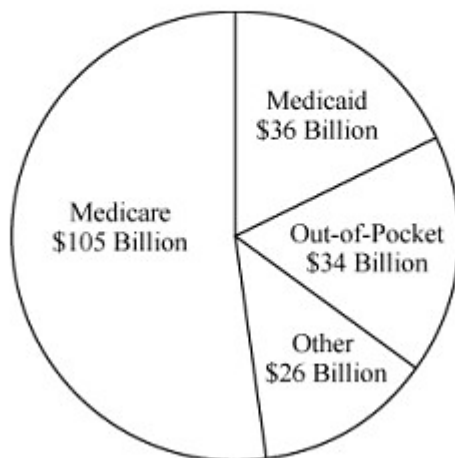
2. Based on the graphs above, compared to individuals in high-income countries, individuals in low-income countries are more likely to die from

- A. breast cancer.
- B. colon cancer.
- C. infectious diseases.
- D. ischemic heart disease.

Answer

Option C is correct because according to the graph, individuals in low-income countries are more likely to die from lower respiratory infections, diarrheal diseases, malaria, or tuberculosis. **Option A is incorrect** because individuals in low-income countries are less likely to die from breast cancer. **Option B is incorrect** because individuals in low-income countries are less likely to die from colon cancer. **Option D is incorrect** because individuals in low-income countries are less likely to die from ischemic heart disease.

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

Option B is correct because care for a patient with Alzheimer’s disease in 2012 was primarily paid for by government sources. **Option A is incorrect** because care for a patient with Alzheimer’s disease in 2012 was not primarily paid by personal insurance plans. **Option C is incorrect** because care for a patient with Alzheimer’s disease in 2012 was not primarily paid by the patient. **Option D is incorrect** because care for a patient with Alzheimer’s disease in 2012 was not primarily paid by the patient’s family.

4. Gregor Mendel discovered genetic inheritance patterns using

- A. mice.
- B. squash.
- C. pumpkins.
- D. garden peas.

Answer

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.

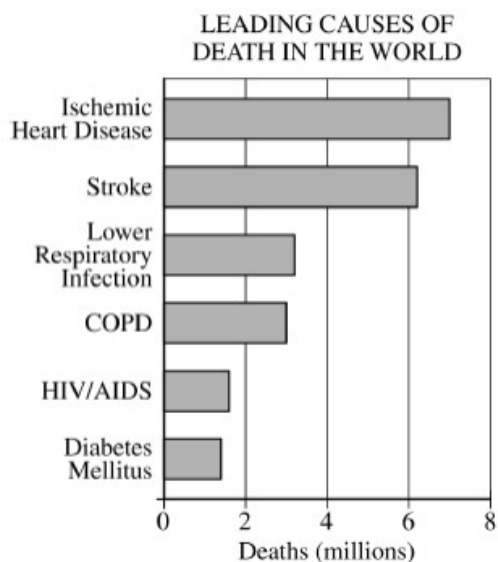
Competency 002—The teacher applies academic skills to health science, understands scientific methods and the impact of scientific research on the health sciences, and organizes and communicates valid conclusions from experimental data.

5. A recent study by the Association of American Medical Colleges (AAMC) estimated that the United States will have a shortfall of more than 50,000 physicians by the year 2025. Based on the study's finding, which of the following statements provides the most reasonable prediction?

- A. Medical assistants will take the place of doctors in most cases.
- B. Health care will proceed as it has, with higher numbers of patients served by fewer doctors.
- C. Nurse practitioners will continue to grow in number and will have much more authority in the future.
- D. Physician assistants will take the place of doctors in most areas of diagnosis and prescription.

Answer

Option C is correct because the numbers of nurse practitioners are growing, with many states now granting them more independence, known as full practice authority. **Option A is incorrect** because medical assistants do not have the training or license to diagnose illness or prescribe medicines. **Option B is incorrect** because other health-care practitioners will have to take on more responsibility to meet the demand for increased need in health care. **Option D is incorrect** because even though the health-care workforce is underutilized, these workers cannot do the work of the doctor or nurse practitioner.



6. Based on the graph, which of the following conditions causes the most deaths worldwide?

- A. Ischemic heart disease
- B. Stroke
- C. Lower respiratory infection
- D. Chronic obstructive pulmonary disease (COPD)

Answer

Option A is correct because according to the graph, at approximately 7 million people, ischemic heart disease is the leading cause of death. **Option B is incorrect** because according to the graph, at approximately 6 million people, stroke is the second-leading cause of death worldwide. **Options C and D are incorrect** because at approximately 3 million people each, lower respiratory infection and COPD are the third- and fourth-leading causes of death of worldwide.

7. Which of the following is a United States government report used to measure the effectiveness of health care in the United States?

- A. World Health Report
- B. National Healthcare Quality and Disparities Report
- C. CDC Health Disparities & Inequalities Report (CHDIR)
- D. National Health Insurer Report Card (NHIRC)

Answer

Option B is correct because the National Healthcare Quality and Disparities Report reports on the quality of health care to all sectors of the population of the United States. **Option A is incorrect** because World Health Report is published by the World Health Organization (WHO) and combines an expert assessment of global health, including statistics relating to all countries, with a focus on a specific subject. **Option C is incorrect** because the Centers for Disease Control and Prevention's Health Disparities & Inequalities Report (CHDIR) reports only on health care to minorities and groups with barriers to adequate care. **Option D is incorrect** because the National Health Insurer Report Card (NHIRC) is a report by the American Medical Association (AMA) concerning health insurance company ratings and expenses.

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

8. Which of the following terms best identifies the confusion, agitation, and aggressive behavior that individuals with dementia frequently experience in the late afternoon and early evening?

- A. Circadian rhythm
- B. Synucleinopathy
- C. Sleep apnea
- D. Sundown syndrome

Answer

Option D is correct because sundown syndrome is often associated with Alzheimer's disease and affects how an individual acts in the late afternoon or early evening. When an individual is sundowning, he or she may be confused, agitated, or aggressive. **Option A is incorrect** because circadian rhythm is the ability of the body to

work within a 24-hour clock. **Option B is incorrect** because synucleinopathy is any degenerative disease of the central nervous system in which there is an excessive accumulation of protein in the neurons. **Option C is incorrect** because sleep apnea is a condition in which a person's breathing is disrupted during sleep.

9. The correct term for blood in the urine is

- A. hematoma.
- B. hemoglobin.
- C. hemolysis.
- D. hematuria.

Answer

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.

10. 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 backs

Answer

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.

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.

11. 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

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.

12. The cardinal gaze test shows that a patient's right eye cannot track in the temporal direction. Which cranial nerve is most likely affected?

- A. III
- B. IV
- C. VI
- D. VII

Answer

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.

13. Which THREE of the following are classified as micronutrients?

- A. Vitamin A
- B. Iron
- C. Protein
- D. Zinc

Answer

Options A, B, and D are correct because micronutrients such as vitamins and minerals, including vitamin A, iron, and zinc, are nutrients that are required by organisms in small quantities to ensure normal function and good health. **Option C is incorrect** because protein, carbohydrates, and fat are macronutrients that are required in relatively large amounts for normal function and good health.

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

14. Which of the following are the causative agents of bovine spongiform encephalopathy in cattle and Creutzfeldt-Jakob disease in humans?

- A. Prions
- B. Bacteria
- C. Viruses
- D. Fungi

Answer

Option A is correct because bovine spongiform encephalopathy (BSE) and Creutzfeldt-Jakob disease result from infection by an agent called a prion. **Option B is incorrect** because bacteria cause diseases in cattle but not BSE or Creutzfeldt-Jakob disease. **Option C is incorrect** because viruses cause diseases in cattle but not BSE or Creutzfeldt-Jakob disease. **Option D is incorrect** because fungi cause diseases in cattle but not BSE or Creutzfeldt-Jakob disease.

15. Which of the following antimicrobial agents interferes with bacterial cell wall synthesis?

- A. Sulfonamide
- B. Penicillin
- C. Tetracycline
- D. Erythromycin

Answer

Option B is correct because penicillin inhibits the formation of cell walls in bacterial cells. **Option A is incorrect** because sulfonamide acts as a competitive inhibitor of the enzyme dihydropteroate synthase (DHPS). **Option C is incorrect** because tetracycline is a protein inhibitor. **Option D is incorrect** because erythromycin inhibits bacterial growth.

16. In 1882, which of the following scientists discovered the causative organism for tuberculosis?

- A. Robert Koch
- B. Joseph Lister
- C. Louis Pasteur
- D. J. Hans D. Jensen

Answer

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 J. Hans D. Jensen was a physicist.

17. Which of the following types of bacteria is completely dependent on oxygen for respiration?

- A. Obligate anaerobe
- B. Obligate aerobe
- C. Aerotolerant anaerobe
- D. Facultative anaerobe

Answer

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.

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.

18. Which of the following are produced as part of the nonspecific immune response?

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

Answer

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.

19. Which of the following cellular components primarily acts as a protein catalyst in facilitating molecular rearrangements important for cell function?

- A. An enzyme
- B. A lysosome
- C. Cytosol
- D. A ribosome

Answer

Option A is correct because an enzyme is a protein catalyst that speeds biochemical reactions by facilitating the molecular rearrangements that support cell function. **Option B is incorrect** because a lysosome is the digestive system in the cell that breaks down molecules into their base component digestive enzymes. **Option C is incorrect** because cytosol is the fluid in which organelles of the cell reside. **Option D is incorrect** because ribosomes are where ribonucleic acid (RNA) is translated into protein. This process is called protein synthesis.

20. The time between the exposure to a pathogenic agent and the appearance of the first symptoms is the

- A. lag period.
- B. decline period.
- C. incubation period.
- D. prodromal period.

Answer

Option C is correct because the incubation period is the time between the infection of an individual by a pathogen and the manifestation of the illness or disease it causes. **Option A is incorrect** because the lag period is the period of time between the introduction of a microorganism into a culture medium and the time it begins to increase exponentially. **Option B is incorrect** because the decline period describes the period where the symptoms are lessening. **Option D is incorrect** because the prodromal period is when symptoms first appear.

Domain III—Occupational Knowledge

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

21. The adverse effects of polypharmacy are much greater for people with which of the following?

- A. Gastrointestinal problems
- B. Skin conditions
- C. Hearing impairments
- D. Cardiovascular issues

Answer

Option D is correct because people who are on medication for cardiovascular issues are at a greater risk for contraindication and falls. **Option A is incorrect** because gastrointestinal problems have nothing to do with the physiological effects of polypharmacy. **Option B is incorrect** because skin conditions and their medication generally do not contribute to side-effects of polypharmacy. **Option C is incorrect** because having a hearing impairment has nothing to do with the effects of polypharmacy.

22. Which of the following lists contains 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

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.

23. 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

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.

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

24. 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

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 because of 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.

25. Information about which of the following is available on the Nutrition Facts label?

- A. Total fats and cholesterol
- B. Product ingredients and allergens
- C. Net weight and company producing the product
- D. Refrigeration status and expiration date

Answer

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.

26. 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

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.

27. 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

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.

28. 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. Potatoes
- D. Fried fish

Answer

Options A, B, and D are correct because dairy, meat and especially spicy meat, and fried fish can trigger flares. **Option C is incorrect** because potatoes are least likely to trigger flares.

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

29. Which of the following methods of drug administration has the most immediate effect on the central nervous system?

- A. Oral
- B. Sublingual
- C. Intravenous
- D. Topical

Answer

Option C is correct because intravenous (IV) drug use, in which the drug is injected directly into a vein and enters the bloodstream to reach the brain, has the most immediate effect on the central nervous system (CNS). **Option A is incorrect** because although oral administration is the most convenient, safest, and least expensive, it does not have the most immediate effect on the CNS. **Option B is incorrect** because sublingual administration involves placing a drug under the tongue to dissolve and be absorbed into the blood through the tissue there; it does not have the most immediate effect on the CNS. **Option D is incorrect** because topical administration involves medication that is applied to a particular place on or in the body; it does not have the most immediate effect on the CNS.

30. A health science teacher shares a scenario in which an individual with a blood clot (deep vein thrombosis) is taking a blood-thinning medication. The teacher explains that the individual should not be asked to take aspirin primarily due to the risk of which of the following?

- A. Relative contraindication
- B. Absolute contraindication
- C. Relative standards
- D. Absolute standards

Answer

Option A is correct because relative contraindication means that caution should be used when two drugs or procedures are used together. While the combination of a blood thinner and aspirin would not cause a life-threatening situation, there is some risk to the individual involved, but it is acceptable because the benefits outweigh the risk. **Option B is incorrect** because absolute contraindication means that event or substance could cause a life-threatening situation. The combination of a blood thinner and aspirin would not cause a life-threatening situation. **Option C is incorrect** because a relative standard is a norm-referenced standard that would not apply to a drug interaction. **Option D is incorrect** because an absolute standard is a norm-referenced standard that would not apply to a drug interaction.

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

31. Which of the following is a symptom of the human body reacting to stress?

- A. Healing of open wounds is slower
- B. Hearing a ringing in the ears
- C. Aching pain due to tense muscles
- D. Having increased sexual desire or ability

Answer

Option C is correct because aches, pains, and tense muscles are physical symptoms of stress. **Option A is incorrect** because slow healing of open wounds is not a result of stress but could indicate another serious medical condition. **Option B is incorrect** because ringing in the ears is not a physical symptom of stress but can indicate another medical condition. **Option D is incorrect** because increased sexual desire or ability is not a physical symptom of stress. A lack of sexual desire or ability is a physical symptom of stress.

32. A 22-year-old patient shows a recent change in personality, has a distorted perception of reality, and experiences disorganized thinking and speech but does not have any other physical symptoms. The patient most likely displays symptoms of which of the following disorders?

- A. Schizophrenia
- B. Dissociative identity disorder
- C. Major depressive disorder
- D. Antisocial personality disorder

Answer

Option A is correct because most people are diagnosed with schizophrenia in their late teens to early 30s.

Someone with schizophrenia may have a recent change in personality, have difficulty distinguishing between what is real and what is imaginary, be unresponsive or withdrawn, and have difficulty expressing normal emotions in social situations. A medical or mental health professional may use these symptoms to diagnose a patient with schizophrenia. **Option B is incorrect** because dissociative identity disorder is when the patient has two or more distinct personalities that alternate with one another. **Option C is incorrect** because patients with major depressive disorder or clinical depression generally have low self-esteem, inescapable and ongoing low mood, and a loss of interest or pleasure in activities that were once enjoyable. **Option D is incorrect** because patients with antisocial personality disorder are impulsive, irresponsible, and callous, often acting out their conflicts and ignoring normal rules of social behavior.

33. 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

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.

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

34. Which of the following lifestyle choices is the largest contributor to death from preventable reasons in the United States?

- A. Drinking alcohol in excess
- B. Consuming a high-fat diet
- C. Smoking cigarettes
- D. Driving recklessly

Answer

Option C is correct because cigarette smoking is the largest preventable contributor to death in the United States. **Option A is incorrect** because drinking alcohol causes fewer deaths per year than several other preventable contributors such as HIV, illegal drug use, vehicle accidents, and firearm accidents combined. **Option B is incorrect** because consuming a high-fat diet, in and of itself, is not a cause of preventable deaths in the United States. A high-fat diet is considered unhealthy when combined with a diet high in carbohydrates and sugar. Additionally, there are several fats that are considered healthy for bodily function and health. The type of fats consumed should also be evaluated. **Option D is incorrect** because motor vehicle accidents cause fewer deaths per year than several other preventable contributors such as HIV, illegal drug use, alcohol use, and firearm accidents combined.

35. Which of the following levels of Maslow's hierarchy of needs primarily deals with prestige and a feeling of accomplishment?

- A. Self-actualization
- B. Esteem needs
- C. Belonging and love needs
- D. Safety needs

Answer

Option B is correct because Maslow's level of esteem needs deals with psychological needs such as prestige and a feeling of accomplishment. **Option A is incorrect** because self-actualization refers to achieving one's full potential, including creative activities. **Option C is incorrect** because belonging and love needs refer to intimate relationships and friends. **Option D is incorrect** because safety needs refer to basic needs, which include security and safety.

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.

36. One of a 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 his or her 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

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 patients' 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 patients 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.

37. 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

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.

38. Which of the following is a key component of the Health Insurance Portability and Accountability Act (HIPAA)?

- A. A patient can ask for an in-law's health records.
- B. A physician can give a patient's health information to his or her employer.
- C. A patient has the right to ask for and get a copy of his or her health records.
- D. A physician can share private notes about a patient's health care.

Answer

Option C is correct because the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule gives a patient, with few exceptions, the right to inspect, review, and receive a copy of his or her medical records and billing records that are held by health plans and health care providers covered by the Privacy Rule. **Option A is incorrect** because a patient cannot ask for an in-law's health records; the in-law must give permission. **Option B is incorrect** because a physician cannot give a patient's health information to his or her employer. **Option D is incorrect** because a physician cannot share private notes about a patient's health care with anyone.

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.

39. Handling chemicals and hazardous materials involves following procedures for both general use and for specific chemical hazard groups. Which of the following handling procedures best describes a generic protocol to follow when handling chemicals?

- A. Using safety rubber bottle carriers or nonbreakable bottles for the transport of strong acids and bases
- B. Working with a peer in the laboratory and correctly labeling all used containers
- C. Storing the smallest possible amounts of toxic chemicals in established areas
- D. Ensuring that flammable liquids are stored only in containers that exceed one-quart capacity for purity

Answer

Option B is correct because a general protocol for all situations is to ensure proper labeling of all chemicals, containers, and materials used in a laboratory. It is also best to work in a laboratory with another person when handling any chemicals. **Option A is incorrect** because using rubber carriers or nonbreakable bottles to transport chemicals is a specific protocol for handling corrosive materials. **Option C is incorrect** because using designated storage space for chemicals in the smallest amount possible is a specific protocol for handling toxins. **Option D is incorrect** because storing chemicals in glass containers and keeping the amount stored at less than a quart to maintain purity is a specific protocol for carcinogens and highly toxic chemicals.

40. Which of the following elements of the cycle of infection primarily includes direct physical contact or contact with body fluids?

- A. Infectious agent
- B. Reservoir

- C. Portal of exit
- D. Transmission

Answer

Option D is correct because transmission is how germs are spread, including physical contact with bodily fluids. **Option A is incorrect** because the infectious agent refers to actual germs that can cause illness. **Option B is incorrect** because the reservoir is where germs normally live and multiply. **Option C is incorrect** because the portal of exit is how germs leave the body.

41. 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

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.

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.

42. 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

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.

43. 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

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.

44. According to the National Institutes of Health (NIH) job competencies, expected responsibilities of a team member are to explore new ideas, methodologies, different positions, and alternatives to reach good outcomes.

These responsibilities best describe which of the following?

- A. Innovation
- B. Adaptability
- C. Collaboration
- D. Accountability

Answer

Option A is correct because innovation is an NIH job competency that involves a team member exploring new ideas, methodologies, different positions, and alternatives to reach outcomes. **Option B is incorrect** because adaptability is an NIH job competency that involves a team member understanding changes in work tasks, situations, and environment as well as the basis for change. **Option C is incorrect** because collaboration is an NIH job competency that involves a team member maintaining positive and productive relationships and working with others to share information and achieve goals. **Option D is incorrect** because accountability is an NIH job competency that involves a team member accepting responsibility for positive and negative outcomes of work.

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.

45. Which THREE of the following are personal characteristics health-care workers should display to be most effective in their profession?

- A. Empathetic
- B. Polite
- C. Resourceful
- D. A follower

Answer

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.

46. Which THREE of the following provide professional development opportunities related to health care?

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

Answer

Options B, C, and D are correct because non-governmental organizations may be involved in health care and provide professional development, academic institutions provide professional development, and consumer organizations related to health care also provide opportunities for professional development. **Option A is incorrect** because donor agencies do not have anything to do with health care.

47. Which THREE of the following are advantages of participating in continuous professional development opportunities related to health care?

- A. It encourages reflective practice.
- B. It allows a person to acquire new skills for a safe and effective practice.
- C. It allows a hospital administrator greater opportunity to transfer staff.
- D. It provides different types of formal and informal learning opportunities and support.

Answer

Options A, B, and D are correct because continuing professional development is an essential component of successful health care systems. The systematic and ongoing provision of opportunities to engage in reflective practice, enhance or acquire new professional skills, knowledge, and attitudes, and participate in different types of formal and informal learning opportunities can lead to improved health care experiences and health outcomes for the community. **Option C is incorrect** because the goal of continuing professional development is to retain staff and increase their knowledge and skill set.

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

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

- A. The 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

Option A is correct because the HIPAA mandated privacy and security regulations. **Option B is incorrect** because the ACA gives people the flexibility to make informed choices about healthcare. **Option C is incorrect** because the WNHA gave general support for a national health program to be funded by federal grants. **Option D is incorrect** because the MFA exempts the insurance from corporations from most federal regulations.

49. An increase in malpractice premiums would most likely influence which THREE of the following decisions by a physician?

- A. Decisions about where to locate the medical practice
- B. Degree of professional development
- C. Selection of insurance company
- D. Charge for treatments to patients

Answer

Options A, C, and D are correct because an increase in malpractice premiums would most likely influence a physician's decisions about where to locate his or her medical practice, the 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.

50. Which of the following is necessary for a medical power of attorney or health care proxy to begin making health care choices for a patient?

- A. The requirements depend on the particular laws of the state in which the patient resides.
- B. At least one physician must determine that the patient is unable to communicate effectively or make health care decisions independently.
- C. At least two physicians must determine that the patient is unable to communicate effectively or make health care decisions independently.
- D. The physician and the family members must agree that the patient is unable to communicate effectively or make health care decisions independently.

Answer

Option A is correct because the laws for a medical power of attorney or health care proxy vary from state to state. It depends on the particular state laws where the patient resides as to how the law is applied. **Options B and C are incorrect** because although a doctor or psychologist or advanced practice nurse working with a doctor will generally make the determination if an individual is unable to communicate effectively or make health care decisions independently, the law varies from state to state. **Option D is incorrect** because the physician and family members do not have to agree that the patient is unable to communicate effectively or make health care decisions independently.