

The following content outlines are the basis of the Part I APMLE exam. Each exam will contain questions about the subjects in its outline. The percentage of scored items within the exam that is devoted to each content area is noted.

**Each test contains scored items that exactly match the test specification. In addition, each test contains other pre-test or equator items that are vital to the program but do not count in scoring. Pretest items are placed in the exam to collect data used to determine the item's suitability for inclusion in the test bank. These additional items do not necessarily follow the specifications and may affect a candidate's perception of how many items on a given topic are encountered.**

## Part I Exam Content Outline

205 questions—Four-hour content time limit

### I. General Anatomy – 12%

- A. Head and neck
  - 1. Cranial nerves
  - 2. Musculoskeletal
  - 3. Angiology
- B. Thorax and abdomen
  - 1. Musculoskeletal
  - 2. Vertebral column
  - 3. Cardiovascular
  - 4. Pulmonary
  - 5. Abdominal organs
- C. Back
  - 1. Musculoskeletal
  - 2. Vertebral column
- D. Upper extremities
  - 1. Musculoskeletal
  - 2. Neurological
  - 3. Vascular
- E. Histology
  - 1. Cytology and cell biology
  - 2. Structure of tissues
- F. Neuroanatomy
  - 1. Central and peripheral nervous system structure and organization
  - 2. Somatosensory system
  - 3. Motor system
- G. Integumentary system
- H. Pelvis and perineum

### II. Lower Extremity Anatomy – 25%

- A. Osteology
  - 1. Bony landmarks, associated structures, and ossification
    - a. foot

- b. leg
- c. thigh
- d. Pelvis

### B. Arthrology

- 1. Joint classification, articulating facets, and ligamentous support
  - a. foot
  - b. ankle
  - c. knee
  - d. hip
  - e. pelvis

### C. Myology

- 1. Muscle origins, insertions, and actions, fasciae, and retinacula
  - a. foot
  - b. leg
  - c. thigh
  - d. pelvis

### D. Angiology

- 1. Arteries, veins, and lymphatics
  - a. foot
  - b. leg
  - c. thigh
  - d. pelvis

### E. Neurology

- 1. Lumbar and sacral plexi and their cutaneous, somatosensory, and sympathetic branches to the lower extremity

### F. Embryology

- 1. Limb bud and limb rotation
- 2. Prenatal and postnatal development

### III. Biochemistry – 9%

- A. Biological acids, bases and buffers

- B. Carbohydrate metabolism
  - 1. Glycolysis
  - 2. Glycogenesis
  - 3. Glycogenolysis
  - 4. Gluconeogenesis
  - 5. Glycosaminoglycans
- C. Bioenergetics
  - 1. Electron transport and oxidative phosphorylation
  - 2. ATP and other energy-related compounds
- D. Amino acids and protein structure
  - 1. Function, synthesis, and metabolism
  - 2. Enzymes
  - 3. Three dimensional structures of proteins
  - 4. Protein-protein interactions
- E. Lipids and biological membranes
  - 1. Structure
  - 2. Function and metabolism of triglycerides
  - 3. Steroids, cholesterol, and lipoproteins
- F. Molecular Biology
  - 1. Nucleotide metabolism
  - 2. Structure and function of DNA and RNA
  - 3. Purine and pyrimidine
- G. Hormones, second messengers, signal transduction properties
  - 1. Growth factors
  - 2. Receptors
  - 3. Steroids and thyroid hormones
  - 4. Plasma transport receptors
  - 5. Glucose-regulating hormones
- H. Blood chemistry
  - 1. Heme metabolism
  - 2. Hemostasis and blood coagulation
  - 3. Plasma composition
  - 4. Molecular aspects of erythrocytes and hemoglobin
- I. Bone chemistry
  - 1. Molecular aspects of bone
  - 2. Calcium and phosphorus metabolism
  - 3. Parathyroid hormone
  - 4. Vitamin D
  - 5. Calcitonin
- J. Free radicals and antioxidants
- K. Nutrition
  - 1. Glycemic index
  - 2. Calories
  - 3. Vitamin deficiencies
  - 4. Fasting and starvation

- 5. Absorptive state
  - L. Genetics
- IV. Physiology – 12%**
- A. Neurophysiology
    - 1. Properties of neurons
    - 2. Synaptic transmission
    - 3. Autonomic
    - 4. Motor
    - 5. Sensory systems
  - B. Myophysiology
    - 1. Electrophysiology regulation of skeletal and smooth muscle function)
  - C. Cardiovascular system
    - 1. Cardiac muscle
    - 2. Electrophysiology
    - 3. Cardiac mechanics
    - 4. Cardiac and peripheral hemodynamics
    - 5. Regional circulation
    - 6. Microcirculation and lymphatics
    - 7. Neural and hormonal regulatory mechanisms
  - D. Pulmonary
    - 1. Mechanisms of ventilation
    - 2. Volumes and capacities
    - 3. Gas exchange
    - 4. Acid base
    - 5. Control of respiration
  - E. Renal and urinary physiology
    - 1. Glomerular filtration
    - 2. Tubular mechanisms
    - 3. Volume regulation
    - 4. Renin-angiotensin system
    - 5. Atrial natriuretic factor
    - 6. Acid-base balance
  - F. Endocrinology
    - 1. Hypothalamus
    - 2. Pituitary
    - 3. Thyroid and parathyroids

- 4. Adrenal
- 5. Pancreas
- 6. Reproductive
- G. Gastrointestinal physiology
  - 1. Hepatic
  - 2. Intestinal
  - 3. Stomach
  - 4. Gallbladder
  - 5. Salivation
  - 6. Swallowing
- H. Bone metabolism
  - 1. Osteoclast
  - 2. Osteoblast
  - 3. Stress/strain
- I. Exercise physiology
  - 1. Thermoregulation
  - 2. Exercise
- J. Hematology
  - 1. Coagulation
  - 2. Platelet
  - 3. Erythrocytes
  - 4. Leukocytes

#### V. Microbiology and Immunology – 14%

- A. Bacteriology
  - 1. Bacterial structure and function
  - 2. Gram-positive infections
  - 3. Gram-negative infections
  - 4. Acid-fast bacilli infections
  - 5. Spirochete infections
  - 6. Mycoplasma infections
  - 7. Transmission
  - 8. Systemic manifestations
- B. Mycology
  - 1. Fungal growth
  - 2. Structure and classification
  - 3. Clinical techniques

- 4. Superficial and systemic infections
- 5. Transmission
- C. Virology
  - 1. DNA and RNA infections
  - 2. Structure
  - 3. Replication
  - 4. Transmission
  - 5. Systemic manifestations
- D. Parasitology
  - 1. Protozoal and parasitic infections
  - 2. Transmission
  - 3. Classifications
  - 4. Systemic manifestations
- E. Emerging drug resistance
  - 1. Mechanisms of drug resistance (mutation)
  - 2. Susceptibility testing
- F. Immunology
  - 1. Nonspecific and specific immunity
  - 2. Cells of the immune system
  - 3. Structure and function of antigens
  - 4. Antibodies and complement
  - 5. Humoral resistance
  - 6. Cell-mediated immune responses
  - 7. Immediate and delayed hypersensitivity
  - 8. Transplantation and tumor immunology
  - 9. Immunodiagnostic methods
- G. Zoonotic infections
  - 1. Definitions
  - 2. Mode of transmission
- H. Infection prevention and treatment
  - 1. Sterilization techniques
  - 2. Antimicrobial agents
  - 3. Vaccines
- I. Laboratory testing
  - 1. Principles
  - 2. Collection and handling of specimens

3. Culture and sensitivity

**VI. Pathology – 14%**

- A. General principles
  - 1. Cell function
  - 2. Growth and repair
  - 3. Cell injury and death
  - 4. Inflammation
- B. Laboratory testing
  - 1. Principles
  - 2. Collection and handling of specimens
  - 3. Culture and sensitivity
  - 4. Synovial fluid analysis
  - 5. Handling of surgical specimens
- C. Disorders
  - 1. Musculoskeletal system
  - 2. Nervous System
  - 3. Integumentary systems
  - 4. Peripheral vascular systems
  - 5. Cardiovascular system
  - 6. Hematopoietic system
    - a. leukemia
    - b. anemias
    - c. sickle-cell
  - 7. Immune System
    - a. allergic and sensitivity reactions
    - b. immunosuppressive states
  - 8. Pulmonary system
  - 9. Urogenital and/or reproductive systems
  - 10. Renal systems
  - 11. Gastrointestinal system
  - 12. Endocrine system
  - 13. Hepatic and extrahepatic biliary system
  - 14. Renal system
  - 15. Reproductive systems
  - 16. Genetic

**VII. Pharmacology – 14%**

- A. General principles
  - 1. Routes of administration
  - 2. Absorption
  - 3. Distribution
  - 4. Biotransformation
  - 5. Metabolism
  - 6. Excretion
  - 7. Dose-effect relationships
  - 8. Factors altering pharmacological effects
  - 9. Drug resistance
  - 10. Pharmacogenomics
- B. Mechanisms of drug action
  - 1. Drug receptor interactions
  - 2. Structure-activity relationships
- C. Drug interactions
  - 1. Potentiation
  - 2. Neutralization
  - 3. Genetic factors
  - 4. Drug-drug
  - 5. Supplements
  - 6. Food
- D. Adverse effects
  - 1. Allergies
  - 2. Toxicity
  - 3. Specific side-effects
  - 4. Teratogenic effects
- E. Anesthetics
  - 1. General anesthetics
  - 2. Local anesthetic
- F. Central nervous system and autonomic agents
  - 1. Anticonvulsants
  - 2. Psychotropic agents
  - 3. Skeletal muscle relaxants
  - 4. Neuromuscular blocking agents
  - 5. Antidepressants
- G. Glycemic agents

- 1. Insulin
- 2. Oral, inhaled and injected hypoglycemic agents
- H. Anti-infectives
  - 1. Antibiotics
  - 2. Antifungals
  - 3. Antivirals
  - 4. Antiprotozoals
  - 5. Antiparasitics
- I. Anti-inflammatories
  - 1. Steroids
  - 2. NSAIDs
  - 3. DMARDs
  - 4. Biologics
- J. Analgesics
  - 1. Opioid agonists and antagonists
  - 2. Non-opioids
- K. Cardiovascular agents
  - 1. Cardiac glycosides
  - 2. Antiarrhythmics
  - 3. Antianginal
  - 4. Anticoagulants and fibrinolytics
  - 5. Antihypertensives
  - 6. Vasodilators
  - 7. Statins
- L. Respiratory agents
  - 1. Bronchodilators
  - 2. Beta 2 agonists
  - 3. Leukotriene inhibitors
  - 4. Anticholinergics
  - 5. Steroids
  - 6. Biologics
- M. Gastrointestinal agents
  - 1. Proton pump inhibitors
  - 2. H-2 blocker
  - 3. Antiemetics
  - 4. Motility
  - 5. Antidiarrheal
- N. Complementary and alternative agents
  - 1. Cannabinoids
  - 2. Vitamins
  - 3. Supplements
  - 4. Herbal
- O. Chemotherapeutic agents
  - 1. Antineoplastics
  - 2. Antirheumatics
  - 3. Immunosuppressants
- P. Uricosuric
- Q. Other pharmaceutical agents
  - 1. Hormone therapy
  - 2. Bisphosphonates
  - 3. Antihistamines
  - 4. Growth factors
- R. Toxicology