**HAP Semester 1 Final Exam**

**Study Guide**

**Unit 1: The Skeletal System and Joints (Chapter 5)**

1. Functions of bone
   1. Support, protection, movement, storage of minerals and fat, blood cell formation
2. Structure of a Long Bone
   1. Gross anatomy **[Fig. 5.2]**
   2. Microscopic anatomy **[Fig. 5.3]**
3. Basics of bone formation, growth and fracture repair **[Figs. 5.4, 5.5, Table 5.2]**
4. Names and locations of bones **[Fig. 5.6]**
5. Joints **[Fig. 4.2, Fig. 5.27]**
   1. Fibrous, cartilaginous, and synovial

**Unit 2: The Human Body: An Orientation (Chapter 1)**

1. Anatomical position
   1. The body is erect with the feet parallel and the arms hanging at the sides with the palms facing forward.
2. Directional terms **[Table 1.1]**
   1. Superior, inferior, anterior, posterior, medial, lateral, proximal, distal, superficial, deep
3. Body planes and sections **[Fig. 1.6]**
   1. Sagittal (and midsaggital), frontal, and transverse/horizontal

**Unit 3: The Muscular System (Chapter 6)**

1. Major muscle functions
   1. Produce movement, maintain posture, stabilize joints
2. Structure of a muscle
   1. Gross anatomy **[Fig. 6.1]**
   2. Microscopic anatomy **[Fig. 6.3]**
3. Skeletal muscle activity
   1. Skeletal muscle contraction requires a signal from the nervous system. Thick and thin filaments slide past each other using ATP for energy. When signal stops, filaments no longer bind each other, and muscle relaxes.
   2. Providing energy for muscle contraction **[Fig. 6.10]**
      1. Aerobic energy pathway: Oxygen, mitochondria, 36 ATP, slow process. “Low intensity, long duration.”
      2. Anaerobic energy pathway: No oxygen, lactic acid formation, 2 ATP, fast process. “High intensity, short duration.”
   3. Effects of exercise on muscles
      1. Aerobic exercise body changes vs. Anaerobic exercise body changes
4. Types of Body Movements **[Fig. 6.13]**
   1. Flexion/extension, rotation, abduction/adduction, circumduction, plantar flexion/dorsiflexion, supination/pronation
   2. Muscles usually work together as antagonistic pairs.
5. Labeling muscles and their actions **[Fig. 6.21, Table 6.3, Fig. 6.22, Table 6.4]**

**Unit 4: The Nervous System (Chapter 7)**

1. Organization of the nervous system **[Fig. 7.2]**
2. Brain anatomy **[Fig. 7.13, 7.14, 7.15]**
3. Brain functions **[Refer to the hand-outs given in class and pp. 235-241]**
4. Cranial nerves **[Fig. 7.21, Table 7.1]**

**Unit 5: Skin (Chapter 4)**

1. Skin anatomy **[Fig. 4.4]**
   1. Epidermis, Dermis, Hypodermis
   2. Melanocytes, sebaceous glands, sweat glands, hair follicles, nerves, and blood vessels.
2. Skin functions
   1. Protection, heat regulation, sensation, and synthesis of vitamin D.
3. Skin disorders
   1. Acne, infections, allergic reactions, burns, and skin cancer