

## ANSWER KEY END OF CHAPTER QUESTIONS / REVIEW EXERCISES

### Chapter 1

#### Introduction to Human Anatomy and Physiology

##### Part A

**1. Briefly describe the early development of knowledge about the human body.**

Our earliest ancestors probably became curious about the body during illnesses and injuries. At these times, they visited shamans who relied on superstition and magic. Throughout early time, this curiosity led to discoveries of the healing powers of certain herbs and potions, especially to treat coughs, headaches, and other common problems. Not until about 2,500 years ago did these superstitious attitudes change and the body was looked at in the new light of modern science. Experiments, accurate observations, and tried techniques rapidly expanded knowledge of the human body. Greek and Latin words were used as a basis to describe body part locations and to explain their functions. This formed the basis for anatomy and physiology.

**2. Distinguish between the activities of anatomists and physiologists.**

**Anatomists** deal with the structure (morphology) of the body parts. This includes the shapes, forms, and placement of body organs and appendages. **Physiologists** deal with the functions of body parts, what the body parts do, and how this is accomplished.

**3. How does a biological structure's form determine its function? Give an example.**

The functional role will depend upon the manner in which the part is constructed. The human hand with its long, jointed fingers makes it possible for human beings to grasp things.

**4. List and describe the ten characteristics of life.**

**Movement** is the ability to self-initiate position changes of either the entire organism or a part of the organism, externally from place to place and/or internally, such as in peristalsis.

**Responsiveness** refers to the ability of an organism to detect changes either within itself or the environment surrounding it and then react to these changes.

**Growth** generally refers to an increase in body size without important changes to its general shape.

**Reproduction** is the process of making a new organism, as in parents producing offspring. It also discusses the process whereby cells can produce others like themselves to take the place of damaged or destroyed cells.

**Respiration** refers to the process of obtaining oxygen, using the obtained oxygen in release of energy from foods, and removing waste gases that are produced in the process.

**Digestion** is the chemical change of ingested foods into simpler substances that can be taken in and used by body parts.

**Absorption** is the passage of digested substances through membranes

**5. Define metabolism.**

The totality of chemical changes that occur within body parts.

**6. List and describe five requirements of organisms.**

**Water**, the most abundant substance in the body, is required for many metabolic processes. It provides the environment for the metabolic processes to take place and then transports substances within the body. It is also important in the process of regulating body temperature.

**Food** is the substances that provide the body with the necessary chemical to sustain life, in addition to water. These chemicals are used in a variety of ways by the body.

**Oxygen**, which makes up about one-fifth of air, is used in the process of releasing energy from food substances.