LEARNING OBJECTIVES

- Explain the relationship between cells, tissues, organs, and organ systems
- Identify and describe the various body membranes
- List and describe the four main types of tissue and variations within each type
- List and describe the main functions of the body systems
FACTOIDS

1. The first four types of tissues to arise from the fertilized egg in the developing zygote are the epithelial, connective, muscular, and...

ANSWERS TO TEST YOUR KNOWLEDGE

Test Your Knowledge 5–1 Answers, p. 91

1. c
2. b
3. a
4. c
5. b
6. d

Test Your Knowledge 5–2 Answers, p. 94

1. b
2. b
3. a
4. d
5. b
6. c

Test Your Knowledge 5–3 Answers, p. 109

List the correct system

1. respiratory
2. urinary
3. skeletal
4. nervous and sensory
5. immune and lymphatic
6. cardiovascular
7. GI or digestive
8. integumentary
ANSWERS FOR CASE STUDY, P. 110

This patient has a rapid heart rate, rapid respiration rate with shortness of breath, and bluish extremities. He has a history of smoking and diabetes and is moderately overweight. He does not have a fever. The patient is clearly having respiratory problems and perhaps cardiovascular problems. The diabetes is perhaps an endocrine problem. He should be referred to a cardiologist and a lung doctor (pulmonologists) right away to deal with his acute problems. A respiratory therapist will probably treat him. Eventually he might see an endocrinologist for his diabetes. He might eventually need to see an oncologist (cancer doctor) if it turns out that he has lung cancer from smoking.

ANSWERS TO REVIEW QUESTIONS, P. 110

Multiple Choice
1. a, 2. b, 3. c, 4. b, 5. d, 6. b, 7. c

Fill in the Blank
1. nervous
2. muscular or skeletal
3. connective
4. visceral
5. endocrine
6. skeletal

Short Answer
1. cells, tissues, organs, systems
2. Epithelium has no blood vessels, has a distinct top and bottom, and has no extracellular matrix. Connective tissue is often well vascularized, usually has no distinct top or bottom, and has an abundant extracellular matrix.
3. Synovial membranes are connective tissue membranes that line joint cavities and lubricate them. Cutaneous membranes are epithelial membranes with a layer of connective tissue that covers the body. Serous membranes are double-layered epithelial membranes that line body cavities and cover organs. There is a potential space between the layers. Mucous membranes are epithelial membranes that line body spaces that are exposed to the environment. These membranes secrete mucus.
4. The three types of muscle tissue are skeletal, cardiac, and smooth. Skeletal muscle is striated, voluntary muscle found attached to bones. Cardiac muscle is involuntary, striated muscle found in the wall of the heart. Smooth muscle is involuntary, unstriated muscle found in the walls of hollow organs.
5. Arthritis-skeletal; Hepatitis-digestive; Pneumonia-respiratory; Osteoporosis-skeletal; Urinary tract infection-urinary.