

Name: \_\_\_\_\_ Lab Time: \_\_\_\_\_

## Introduction to the Human Body Chapter 1 Study Guide

### Part I. Clinical Applications

1. Unlike the abdominal viscera, the pleural viscera within the thoracic cavity are separated into two compartments by an area called the mediastinum. What is the clinical importance of this compartmental arrangement?
2. A radioactive tracer is induced into the heart to trace the possibility of a blockage in or around the uterus. Give the sequence of body cavities that would be included as the tracer travels in the blood from the heart through the aorta and uterine artery.
3. Monitoring fetal development may be dangerous for the fetus if improper diagnostic techniques are used. Why is ultrasound an effective means of monitoring fetal development?
4. Gastroenterologists use X-rays to check for ulcers or other stomach and upper digestive tract disorders. Before the X-rays are taken why is it necessary for the patient to drink large quantities of a solution that contains barium ions?
5. An alien landed in your backyard, abducted your cat, and flew off. Being an observant student of anatomy, you later described the alien's appearance to the FBI as follows: "It had 2 caudal extensions, 6 bilateral extremities, 4 axillae, two pedals, 8 otics, and 1 oral orifice in place of an umbilicus." What did the alien look like in common terms?
6. The Chan family was traveling in their van and had a minor accident. The children in the backseat were wearing lab belts, but they still sustained bruises around the abdomen and had some internal organ injuries. Why is this area more vulnerable to damage than others?

7. John, a patient at Redding Medical Center, is in bad shape. He has a hernia in his inguinal region, pain from an infected kidney in his lumbar regions, and severe bruises and swelling in his pubic region. Explain, in common terms, where each of these regions is located?
  
8. The following are advanced imaging techniques have been discussed in lecture: CT, DSA, PET, ultrasound, and MRI. Which of these techniques uses X-rays? Which uses radio waves and magnetic fields? Which uses radioisotopes? Which displays body regions in sections? You may have more than one answer for each question.
  
9. A patient reports stabbing pains in the right hypochondriac region. Based on your knowledge of the organs in this area give a probable diagnosis?
  
10. Early one morning you develop sharp pains in the right lower quadrant. In addition you discover that you are running a fever. Give a probable diagnosis for your symptoms.
  
11. Mikhail has been diagnosed with a ruptured appendix, which has allowed bacteria from his intestinal tract to infect his peritoneum. Why is this condition (peritonitis) so dangerous?
  
12. You are studying for your first anatomy exam and want to know which areas of your brain are working hardest as you study. Your classmate suggests that you could have a computed tomography (CT) scan done to assess your brain activity. Would this be the best way to determine brain activity?

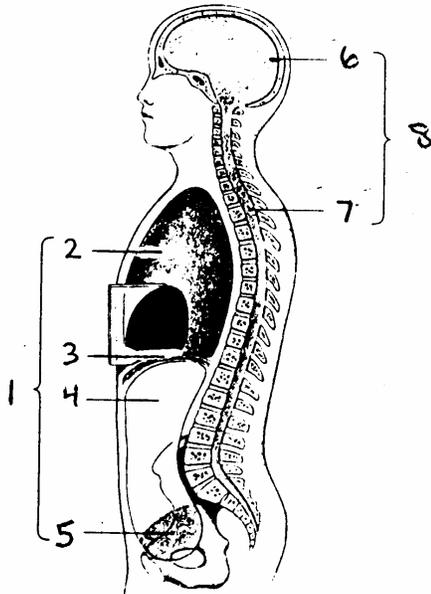
# Introduction to the Human Body

## Study Guide, Chapter 1

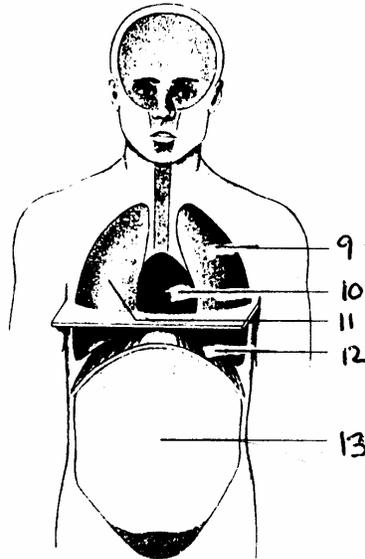
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Part II

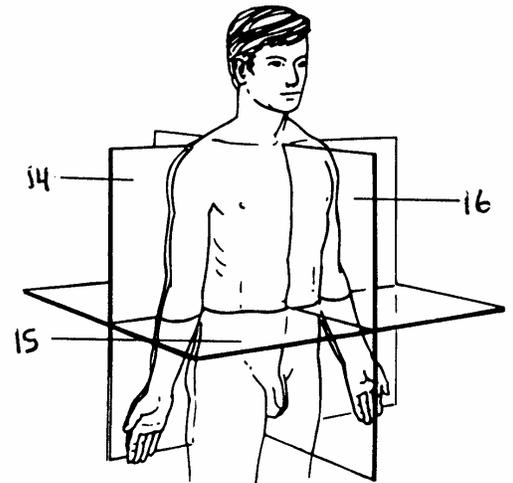
Body Cavities – Sagittal View



Body Cavities – Anterior View



Planes of the Body



- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_
- 4 \_\_\_\_\_
- 5 \_\_\_\_\_
- 6 \_\_\_\_\_
- 7 \_\_\_\_\_
- 8 \_\_\_\_\_

- 9 \_\_\_\_\_
- 10 \_\_\_\_\_
- 11 \_\_\_\_\_
- 12 \_\_\_\_\_
- 13 \_\_\_\_\_

- 14 \_\_\_\_\_
- 15 \_\_\_\_\_
- 16 \_\_\_\_\_

- 17 The \_\_\_\_\_ cavity contains the stomach, spleen, and liver.
- 18 The urinary bladder, portions of the large intestines, and internal reproductive organs are located in the \_\_\_\_\_ cavity.
- 19 The cavity, formed by the cranial bones, that contains the brain is the \_\_\_\_\_ cavity.
- 20 The pericardial and pleural cavities and the mediastinum are subdivisions of the \_\_\_\_\_ cavity.
- 21 Together, the thoracic and abdominopelvic cavities form the \_\_\_\_\_ cavity.

# CONCEPT MAP

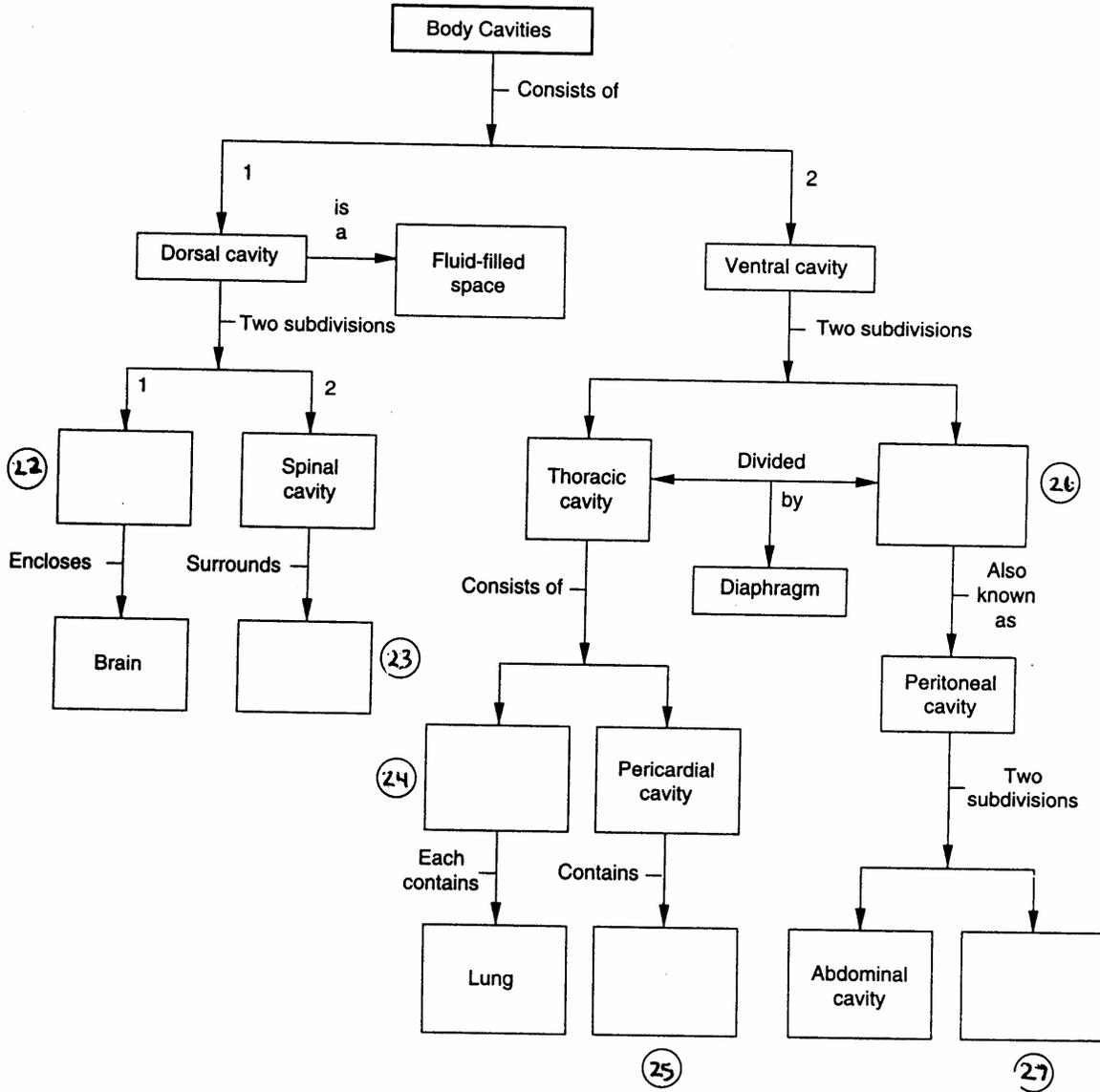
Using the following terms, fill in the circled, numbered, blank spaces to complete the concept map. Follow the numbers which comply with the organization of the concept map.

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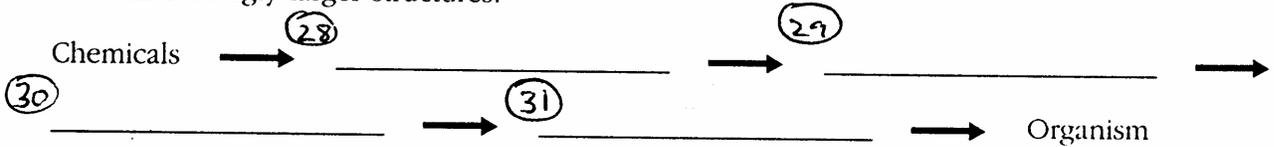
Pelvic Cavity  
Heart

Spinal Cord  
Abdominopelvic Cavity

Cranial Cavity  
Two Pleural Cavities



3. The structures of the body are organized into successively larger and more complex structures. Fill in the answer blanks with the correct terms for these increasingly larger structures.





Part IV

Using the key choices, identify the organ systems to which the following organs or functions belong. Insert the correct letter or term in the answer blanks.

Key Choices

- |                |                  |              |          |
|----------------|------------------|--------------|----------|
| Cardiovascular | Integumentary    | Nervous      | Skeletal |
| Digestive      | Lymphatic/Immune | Reproductive | Urinary  |
| Endocrine      | Muscular         | Respiratory  |          |

- \_\_\_\_\_ 1. Rids the body of nitrogen-containing wastes
  - \_\_\_\_\_ 2. Is affected by the removal of the thyroid gland
  - \_\_\_\_\_ 3. Provides support and levers on which the muscular system can act
  - \_\_\_\_\_ 4. Includes the heart
  - \_\_\_\_\_ 5. Protects underlying organs from drying out and mechanical damage
  - \_\_\_\_\_ 6. Protects the body; destroys bacteria and tumor cells
  - \_\_\_\_\_ 7. Breaks down foodstuffs into small particles that can be absorbed
  - \_\_\_\_\_ 8. Removes carbon dioxide from the blood
  - \_\_\_\_\_ 9. Delivers oxygen and nutrients to the body tissues
  - \_\_\_\_\_ 10. Moves the limbs; allows facial expression
  - \_\_\_\_\_ 11. Conserves body water or eliminates excesses
  - \_\_\_\_\_ 12. Provides for conception and childbearing
  - \_\_\_\_\_ 13. Controls the body with chemicals called hormones
  - \_\_\_\_\_ 14. Is damaged when you cut your finger or get a severe sunburn
15. The four basic types of tissues in the body are:  
 \_\_\_\_\_
16. The serous membrane lining the abdominal cavity is the \_\_\_\_\_
17. Because the liver and ascending colon are both located on the right side of the abdomen, they could be described as \_\_\_\_\_-lateral.
18. A \_\_\_\_\_ plane divides the body into unequal right and left sections.
19. In terms of position, the spleen is \_\_\_\_\_ to the diaphragm and \_\_\_\_\_ to the stomach.

complete the following table of common and anatomical names.

7

Common Name	Anatomical Term
20	Cervical
21 Forearm	
22	Axillary
23 Cheek	
24	Orbital
25 Thigh	
26	Pedal
27 Groin	
28	Acromial
29 Chin	
30	Crural
31 Breast	

32	Carpal
33 Arm	
34	Calcaneal
35 Palm	
36	Tarsal
37 Fingers	
38	Gluteal
39 Back of knee	
40 Hand	
41 Sole	
42	Olecranal
43 Hip	
44	Oral

45. The study of structural changes associated with disease is

- A. histology
- B. cytology
- C. embryology
- D. radiography
- E. pathology

46. The process of an unspecialized cell changing into a specialized cell is called

- A. growth
- B. reproduction
- C. differentiation
- D. responsiveness
- E. metabolism

47. The gallbladder is located in which region?

- A. left lumbar
- B. right lumbar
- C. epigastric
- D. left hypochondriac
- E. right hypochondriac

48. Which structures are located in the left iliac region?

- A. stomach and spleen
- B. pancreas and spleen
- C. liver and gallbladder
- D. ascending colon and liver
- E. junction of descending and sigmoid parts of colon

49. The term parasagittal indicates which of the following?

- A. equal left and right halves
- B. equal superior and inferior halves
- C. unequal left and right halves
- D. unequal superior and inferior halves
- E. unequal anterior and posterior halves

50. Which body cavity contains the urinary bladder and internal reproductive organs?

- A. vertebral
- B. abdominal
- C. pelvic
- D. thoracic
- E. pleural

51. The plane that divides the body into anterior and posterior halves is called the

- A. sagittal
- B. transverse
- C. horizontal
- D. coronal
- E. cross-sectional

52. What position is the body in when the anterior side is lying down?

- A. posterior
- B. medial
- C. dorsal
- D. prone
- E. supine

Answer (T) True or (F) False to the following questions.

- 53. \_\_\_\_\_ The endocrine system includes the spleen, thymus, and tonsils.
- 54. \_\_\_\_\_ The esophagus is anterior to the trachea.
- 55. \_\_\_\_\_ The back of the elbow is also known as the olecranon.
- 56. \_\_\_\_\_ Structures located on the same side of the body are said to be ipsilateral.
- 57. \_\_\_\_\_ The lungs are located within the pericardial cavity.

Part V Medical Imaging

match the medical imaging with the correct definition.

CR	conventional radiography
CT	computerized tomography
DSA	digital subtraction angiography
MRI	magnetic resonance imaging
PET	positron emission tomography
US	ultrasound

- 1. \_\_\_\_\_ A computer compares an x-ray image of a region of the body before and after a contrast dye has been introduced.
- 2. \_\_\_\_\_ Provides information on function as well as structure.
- 3. \_\_\_\_\_ A single barrage of x-rays passes through the body and produces a two-dimensional image of the interior of the body.
- 4. \_\_\_\_\_ High-frequency sound waves produced by a hand-held transducer reflect back to produce an image on a video monitor.
- 5. \_\_\_\_\_ X-ray source arcs around the body, producing a cross-sectional picture.
- 6. \_\_\_\_\_ Noninvasive and uses no radiation, but is not indicated for pregnant women or persons with pacemakers or metal joints.

Number the following structures, from darkest (black) to lightest (white), as they would appear on an X ray. Number the darkest one 1, the next darkest 2, etc.

- \_\_\_\_\_ 7. Soft tissue
- \_\_\_\_\_ 8. Femur (bone of the thigh)
- \_\_\_\_\_ 9. Air in lungs
- \_\_\_\_\_ 10. Gold (metal) filling in a tooth

- 11. The radiographic technique used to provide information about blood flow is:
  - A. DSR
  - B. CT
  - C. PET
  - D. ultrasonography
  - E. any X-ray technique

\_\_\_\_\_ 12. The procedure used to monitor circulatory pathways using radiodense dyes produces an X-ray image known as:

- a. an MRI
- b. a CT scan
- c. an echogram
- d. an angiogram

\_\_\_\_\_ 13. Checking for tumors or other tissue abnormalities is best accomplished by the use of:

- a. computerized tomography
- b. X-ray
- c. ultrasound
- d. magnetic resonance imaging

\_\_\_\_\_ 14. Resistance to X-ray penetration is called radiodensity. From the following selections, choose the one that correctly shows the order of increasing radiodensity of materials in the human body.

- a. air, liver, fat, blood, bone, muscle
- b. air, fat, liver, blood, muscle, bone
- c. air, fat, blood, liver, muscle, bone
- d. air, liver, blood, fat, muscle, bone

\_\_\_\_ 15. The two regulatory systems in the human body include the:

- a. nervous and endocrine
- b. digestive and reproductive
- c. muscular and skeletal
- d. cardiovascular and lymphatic

\_\_\_\_ 16. From the organ systems listed below, select the organs in correct sequence which are found in each of the systems. (cardiovascular, digestive, endocrine, urinary, integumentary)

- a. blood vessels, pancreas, kidneys, lungs, nails
- b. heart, stomach, lungs, kidneys, hair
- c. heart, liver, pituitary gland, kidneys, skin
- d. lungs, gall bladder, ovaries, bladder, sebaceous glands

### BODY TREK:

Using the terms below, fill in the blanks to complete the trek through the *levels of organization* in the human body.

Tissues	Organelles	Cells	Organism	Subatomic particles
Protoplasm	Atoms	Systems	Molecules	Organs

Robo, the micro-robot, is introduced into the body by way of the mouth where immediate contact is made with the lining of the mouth, which consists of a mucous epithelium. Immediate feedback to Mission Control gives information about the chemical interactions taking place, resulting in the formation of cells. Robo discloses that protons, neutrons, and electrons, which are (17) \_\_\_\_\_, are combining in specific numbers and arrangements to form (18) \_\_\_\_\_. There, forms, invisible to the naked eye but revealed by Robo's advanced detection system, seem to be sharing and/or giving and taking electrons and forming bonds which hold them together to make (19) \_\_\_\_\_. The chemical conglomeration of the bonded forms results in a complex living, somewhat colloidal, substance called (20) \_\_\_\_\_. The living matter contains some organized structures called (21) \_\_\_\_\_. The living matter is surrounded by a double phospholipid-protein layered enclosure known as a membrane. The enclosed living substance along with its organized microscopic forms comprises the makeup of the individual units of structure and function in all living things called (22) \_\_\_\_\_. As Robo's trek continues it is quite evident that there are many of the individual units which are combining with one another to form (23) \_\_\_\_\_. Four kinds are detected as Robo treks into other areas of the body. Epithelial was rather plentiful in the mouth, while other areas of the body include the presence of muscular, nervous, and connective types. The complex, multi-unit types form more organized and complex structural and functional units called (24) \_\_\_\_\_, which, when performing in a similar capacity, make up the eleven body (25) \_\_\_\_\_. The complex, complete, living being is referred to as an (26) \_\_\_\_\_. With the completion of Robo's investigation, Mission Control programs a convenient exit by way of the mouth, and preparations will be made for the next body trek.

Match the terms in column B with the terms in column A. Use letters for answers in the spaces provided.

#### PART I

#### COLUMN A

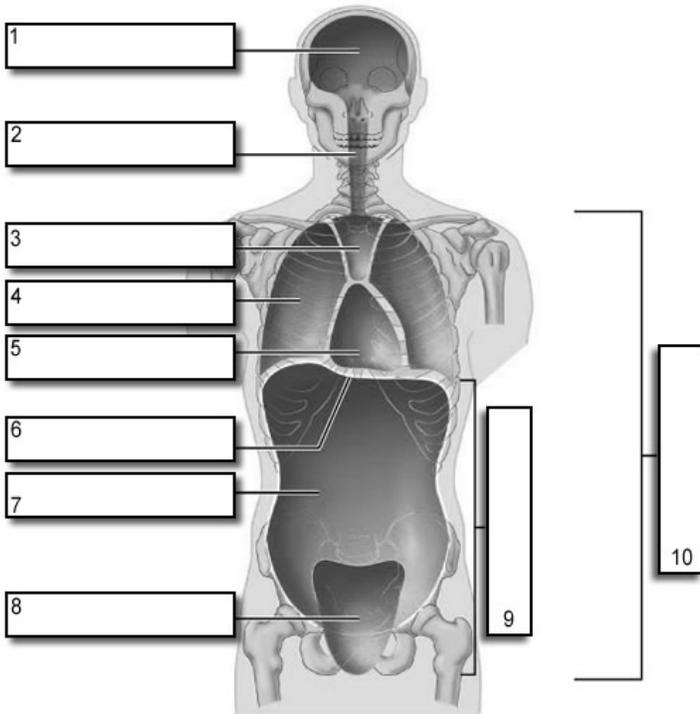
#### COLUMN B

- |                                   |                           |
|-----------------------------------|---------------------------|
| ____ 27. excretion                | A. disease                |
| ____ 28. respiration              | B. organelles             |
| ____ 29. gross anatomy            | C. endocrine              |
| ____ 30. pathology                | D. oxygen, carbon dioxide |
| ____ 31. internal cell structures | E. cardiovascular         |
| ____ 32. heart                    | F. waste elimination      |
| ____ 33. pituitary                | G. macroscopic            |

\_\_\_\_ 34. Moving from the wrist toward the elbow is an example of moving in a \_\_\_\_\_ direction.

- a. proximal
- b. distal
- c. medial
- d. lateral

**Part VI**  
**Exercise A**



**Exercise B**

