Introduction to the Human Body
Study Guide, Chapter 1

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?

   Since there is a lung in each compartment, if one lung is diseased or infected the other lung may remain functional. Also, if one lung is traumatized due to injury, the other one may be spared and function sufficiently to save the life of the injured person.

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.

   Pericardial, thoracic, abdominal, pelvic

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?

   No adverse effects have been attributed to the sound waves, and fetal development can be monitored without a significant risk of birth defects. Ultrasound machines are relatively inexpensive and portable.

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?

   Barium is very radiodense, and the contours of the gastric and intestinal lining can be seen against the white of the barium solution.

5. An alien landed in your backyard, abducted your cat, and flew off. Being an observant student of anatomy, your 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?

   The alien would have 2 tails, 4 arms, 2 legs –each with a foot, 8 ears, and a mouth where its navel is usually located.

6. The Chan family was traveling in their van and had a minor accident. The children in the back seat 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?

   The anterior and lateral aspects of the abdomen have no bony (skeletal) protection.
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?

John has a hernia in the area where his thigh and trunk meet. Pain from his infected kidney radiating to his lower back, and bruises and swelling in his genital area.

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? Your may have more than one answer for each question.

Techniques that use -
- X-rays: CT and DSA
- Radiowaves and magnetic field: MRI
- Radioisotopes: PET

Techniques that display body regions is sections: CT, MRI, and PET

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?

The right hypochondriac region contains the gallbladder and a larger portion of the liver. Initial diagnosis would be gallstones.

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.

Appendicitis

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?

The peritoneum, the largest serous membrane in the body, covers most organs in the abdominal cavity. Therefore, an infection in this structure can spread to any or all organs in the cavity.

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?

No. Computed tomography is used to look at differences in tissue density. To assess activity in an organ such as the brain, a positron emission tomography (PET) scan would provide a colorized visual assessment of brain activity.
### Part II
1. Ventral (anterior) cavity  
2. Thorascic cavity  
3. Diaphragm  
4. Abdominal cavity  
5. Pelvic cavity  
6. Cranial cavity  
7. Spinal cavity  
8. Dorsal (posterior) cavity  
9. Lt Pleural cavity  
10. Pericardial cavity  
11. Rt. Pleural cavity  
12. diaphragm  
13. Abdominal Cavity  
14. Frontal (coronal)  
15. Transverse  

### Part III
1. Ventral, Pelvic  
2. Ventral, Thoracic  
3. Dorsal, Cranial  
4. Ventral, Pelvic  
5. Ventral, Abdominal  
6. Epigastric region  
7. Rt. Hypochondriac region  
8. Umbilical region  
9. Rt. Lumbar region  
10. Hypogastric region  
11. Rt. Iliac region  
12. Anterior  

### Part IV
1. Urinary  
2. Endocrine  
3. Skeletal  
4. Cardiovascular  
5. Integumentary  
6. Lymphatic/Immune  
7. Digestive  
8. Respiratory  
9. Cardiovascular  
10. Muscular  
11. Urinary  
12. reproductive  
13. Endocrine  
14. Integumentary  
15. Epithelial, Connective, Muscular, nervous  
16. Peritoneum  
17. ipsi-lateral  
18. Parasagittal  
19. Inferior, lateral (also superior)  
20. Neck  
21. Antebrachial  
22. Armpit  
23. Buccal  
24. Eye  
25. Femoral  
26. Foot  
27. Inguinal  
28. Shoulder  
29. Mental  
30. Leg  
31. Mammary  
32. Wrist  
33. Brachial  
34. Heel  
35. Metacarpal  
36. ankle  
37. Digital or Phalangeal  
38. Buttocks  
39. Popliteal  
40. Manual  
41. Plantar  
42. Back of elbow  
43. Coxal  
44. Mouth  
45. E  
46. C  
47. E  
48. E  
49. C  
50. C  
51. D  
52. D  
53. F  
54. F  
55. T  
56. T  
57. F
Part V

1. DSA
2. PET
3. CR
4. US
5. CT
6. MRI
7. 2
8. 3
9. 1
10. 4
11. A
12. D
13. A
14. C
15. A
16. C
17. Subatomic Particles
18. Atoms
19. Molecules
20. Protoplasm
21. Organelles
22. Cells
23. Tissues
24. Organs
25. Systems
26. Organism
27. F
28. D
29. G
30. A
31. B
32. E
33. C
34. A

Part VI

Exercise A

1. Cranial cavity
2. Spinal cavity
3. Mediastinum
4. Pleural cavity
5. Pericardial cavity
6. Diaphragm
7. Abdominal cavity
8. Pelvic cavity
9. Abdominopelvic cavity
10. Ventral cavity

Exercise B

1. Cranial cavity
2. Dorsal cavity
3. Spinal cavity
4. Thoracic cavity
5. Diaphragm
6. Abdominal cavity
7. Pelvic cavity