Histology Midterm 2 Study Guide (Fall 2003)

You should be familiar with label drawings, anatomy and terminology associated with the following questions, statements and concepts. The test will be the same format as last time. The material that will be covered is from the CNS through Urinary system. Chapters 9, 15-21.

1. What is the embryological derivation of the nervous tissue?
2. What is so special about this tissue embryologically?
3. What constitutes the cytoskeleton of the neuronal tissue?
5. What cells are responsible for myelination within the CNS? Outside the CNS?
6. Describe myelination. What is a Schmidt-Lanterman cleft? Where would you expect to find myelinated and unmyelinated axons? What is the purpose of a node of Ranvier?
7. What are the different types of synapses? Hint: axodendritic is one. How do they describe signal transmission in neuronal tissue?
8. Describe and label the investments of a nerve. (Figure 9-22)
9. Briefly compare the parasympathetic and sympathetic aspects of the autonomic nervous system.
10. Describe what you would find in each aspect of a cross-section of the spinal cord in the thoracic region.
11. Why do you have so much more control over your fingers than your toes? Is this explained by the spinal cord in any way?
12. Compare and contrast the three connective tissue coverings of the brain and spinal cord. Why are there macrophages, mast cells and lymphocytes in the Pia mater?
13. The Digestive System.
14. Describe the epithelial lining as you go from the chin on the outside of the body, through the digestive system and out of the anus.
15. Why do we include the liver, gall bladder and pancreas in discussions of the digestive system?
16. What are the main functions of the digestive system?
17. I’m confused; I thought the digestive system is on the inside of the body. Why is the digestive system considered a primary ecological interface? Why do you never see green rabbit pellets?
18. What is the vermilion zone? Why is it vermilion?
19. Describe the antigen-presenting portions of the tongue. Where are they?
20. What is housed on the inside of a papilla of the tongue?
21. Where are the different glands located in the mouth? Describe their multilobular structure. What is the purpose of septa? What kind of glandular tissue makes up the three major glands of the mouth?
22. Describe the position and function of a myoepithelial cell.
23. Define the following: Nasopharynx, Oralpharynx, Laryngopharynx, alimentary canal, mucosa, submucosa, muscularis externa, adventitia, serosa, retroperitoneal, intraperitoneal, lamina propria, lumen, serous demilune, mucus, mucous gland, villus, microvilli, cilia, stereocilia, crypts of lieberkuhn, fundus, rugae, cardiac stomach, pylorus, duodenum, sphincter of oddii, Pyloric sphincter, gastric pit, zymogen, canaliculi of a parietal cell, canaliculi of a pancreatic cell, brush border, goblet cell, plicae circulares, Brunner’s glands, Peyer’s patches, Enterocytes, Paneth Cells, Centroacinar cells Chief cell, Parietal cell, columns of Morgagni. Ampulla of Vater
24. Where might you find a keratinized esophagous? Is the esophagus intra- or retroperitoneal (trick question).
25. Be able to label a diagram of the generic alimentary canal such as figure 17-4 in your book.
26. Label the general anatomy of the digestive system.
27. What is the function of each of those anatomical features?
28. Compare and contrast the four basic mucosal forms? Where is each found within the DS?
29. What are the functional differences between the regional glands in the stomach?
30. What kind of cells make up the glands of the stomach? What is the job of each of those cells?
31. Identify the basic anatomy of a gland. In a stomach gland, what kind of cells can be found in the different anatomical regions of the gland?
32. What are the mechanisms by which vertebrates increase the absorptive surface area of the small intestine?
33. Why is the duodenum such an incredibly important part of the body?
34. Compare and contrast the features and functions of the different sections of small intestine. Do the same for the large intestine.
35. What is the sigmoidal colon?
36. Describe the specialized muscularis externa of the large intestine.
37. Compare the endocrine and exocrine portions of the pancreas.
38. Define central lumen of pancreas, intercalated duct, intralobular duct, interlobular duct, pancreatic duct, intercellular canaliculi, centroacinar cells, islet of langerhans, portal venule, hepatic artery, lymphatic duct, bile duct, sinusoids, limiting plate.
39. Label figure 18.5, and 18.9.
40. Why are there lots of capillaries associated with the Islets of Langerhans?
41. What are the different functions of the liver? Describe the endocrine and exocrine components of the liver
42. What are the different ways to conceptualize the hepatic lobule?
43. Describe the portal system of the liver.
44. Respiratory System.
45. What are the major functions of the respiratory system?
46. Identify the two passageways of the RS.
47. How does the epithelial lining change from the trachea to the alveoli?
48. Describe the mucociliary escalator.
49. Explain the general anatomy of the respiratory system. What are the histological differences among the different anatomical portions of the RS? Where can you find elastic and smooth muscular tissue in the lungs?
50. A sac of air seems rather inefficient. Can you think of more efficient ways to exchange gasses with the external environment?
51. What is the difference b/w type I and type II pneumocytes? What is a dust cell?
52. Describe the blood-air barrier of the lungs.
53. Urinary System.
54. Create a table describing the major morphological features of the epithelium of the different segments of the renal tubules and the correlations with function.
55. Describe the general anatomy of the urinary system. What is the function of each of the components and of the urinary system as a whole?
56. Is there separation between the urinary and reproductive tracts in H. sapiens?
57. Describe the basic anatomy of the kidney.
58. Define: Renin, Erythropoietin, Vitamin D, “juxtamedullary”, renal corpuscle, major calyx, minor calyx, renal pelvis, Ureter, hilum, cortex and medulla of the kidney, interlobular artery, arcuate blood vessel, renal sinus, renal capsule, Bowman’s space, Henle’s loop, glomerulus, pars recta, pars convoluta, proximal tubule, distal tubule (distal to what?), collecting tubule, urinary pole, vascular pole, visceral layer, parietal layer, Glands of Littre.
59. Let’s say for a moment you were shrunken to a very small size and you just completed an expeditionary mission through the innards of a poor VA hospital patient. You’ve become lost, however you know that you are in the renal artery somewhere. You have just seen a nasty extraneous ion that needs to be expelled from the body via the urinary system. You and your colleagues decide to follow it out. Describe the anatomical pathway you would take on your journey to glory. Try not to get flushed.
60. What happens to water in the presence of ADH? What if the ADH is blocked? What is likely to block ADH? Why do you have a headache after a long dark night at Billy Hess’?
61. Describe, in general, the development of a renal corpuscle.
62. What is a podocyte? Label figure 19-7. Be able to describe the passage of material from the lumen of a capillary in a glomerulus to the bowman’s space.
63. Histologically, how can one tell the difference between the different sections of a renal tubule?
64. How does the cross-sectional histology compare between the Ureter and a section of the digestive tube?
65. Describe transitional epithelium. Where would you find it and why?
66. Describe the histology of the Urethra. Stratified columnar…. where????