

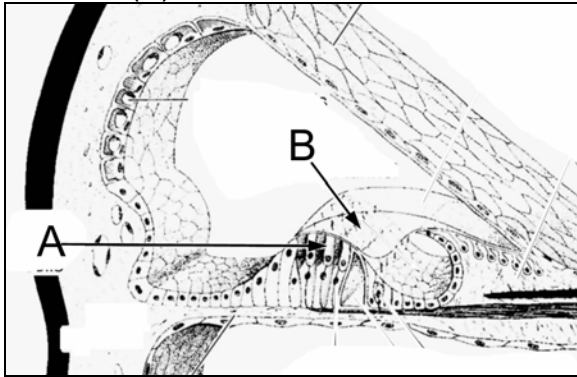
BMD 415 Microscopic Anatomy, Fall 2002  
Final Lecture Exam

There are 48 questions worth 2 points each, and one question worth 4 points (#42), for a total of 100 points. Questions 1-13 cover old material, questions 14-48 cover material since the last exam, and question 49 is food for thought. Provide the best possible answer to the questions. Illegible answers will be marked wrong. Answers do not have to be in complete sentences.

1. If you see a fold in a tissue section, at which step in the processing do you think it occurred (A)? How could it have been avoided (B)?
2. In what ways (if any) would a tangential section through squamous, cuboidal, or columnar epithelia differ (A)? Draw a diagram (B). Assume a tangential cut to be parallel to the epithelial surface.
3. What characteristic of cartilage is different from other connective tissue (A), and what characteristic is similar to other connective tissue (B)?
4. In a decalcified bone preparation what is removed (A), and what remains (B)?
5. What makes up a triad in skeletal muscle?
6. Is it possible to see mitotic figures in nervous tissue (A)? Explain (B)?
7. Name a location of closed capillaries (A), and a location of fenestrated capillaries (B).
8. Describe how you envision diapedesis to take place. What steps need to occur?
9. How would the microscopy of a swollen tonsil (A) compare to a normal tonsil (B)?
10. Describe two secretions of cells in glands of the small intestine.
11. Which cellular structures are common to salivary serous cells and pancreatic acinar cells?
12. What layers make up the blood-air barrier in the lungs?
13. What do sebaceous glands and adrenal cortex cells have in common?
14. How are the muscularis of the bladder and the uterus alike?
15. Where is renin secreted (A), and what is its effect on the body (B)?
16. Describe one similarity (A) and one difference (B) between proximal and distal convoluted tubules.
17. Where does aldosterone act (A) and what is its effect (B)?
18. Describe the function of the loop of Henle.
19. What do proximal convoluted tubules have in common with salivary gland ducts?
20. What are the effects of calcitonin (A) and parathyroid hormone (B) on osteoclasts?
21. What are the two components of colloid in thyroid follicles?
22. In pancreatic islets what do A cells (A) and D cells (B) secrete?

23. Describe two structural or functional features of the zona reticularis of the adrenal cortex.
24. Do adrenal cortex cells have secretory granules? Explain.
25. Name the two hormones of the neurohypophysis.
26. Describe the two functions of the testes.
27. What does the acrosome contain (A) and what is its function (B)?
28. Describe two functions of Sertoli cells.
29. Which pituitary hormone(s) affects spermatogenesis?
30. What are the components of the spermatic cord?
31. Why do some cross sections of seminiferous tubules contain mature sperm while others contain early spermatids?
32. The oocyte in a human primordial follicle is about  $25\mu\text{m}$  in diameter. However, in our slides the oocytes are about 15X the diameter of red blood cells. What could account for this difference?
33. What separates theca interna cells from granulosa (follicular) cells?
34. What is the first polar body?
35. What mechanisms transport ova along the uterine tube?
36. Through what layers does maternal-to-fetal transport cross in the placenta?
37. What uterine tissues are regenerated during the proliferative phase?
38. What are the sources of oxygen (A) and nutrients (B) for the cornea?
39. Why is there cupping of the optic papilla in glaucoma?
40. Describe two functions of the choroid layer.
41. What is presbyopia?
42. (4 pts) Explain why papilledema could be an indication of problems elsewhere in the central nervous system.
43. What stimulation excites the crista ampullaris?
44. What stimulation excites the maculae?
45. What is the function of the middle ear?
46. Name two locations of perilymph.

47. Identify the cell (A) and the structure(B).



48. Describe two processes of accommodation besides lens thickening.

49. How is this poem related to histology?

## **The Red Wheelbarrow**

**William Carlos Williams**

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so much depends  
upon

a red wheel  
barrow

glazed with rain  
water

beside the white  
chickens.