#1 - #18 MULTIPLE CHOICE QUESTIONS:

1. Regarding the renal corpuscle, which of the following is CORRECT:
a) the parietal layer of Bowman's capsule is composed of podocytes
b) the urinary space contains glomerular filtrate
c) arterioles enter and exit at the urinary pole
d) all of the above
e) none of the above

2. Which of the following is/are part to the glomerular filtration barrier:
a) basement membrane between podocytes and capillary endothelial cells
b) slit diaphragms between foot processes of podocytes
c) fenestrations of glomerular capillary endothelial cells
d) all of the above
e) none of the above

3. Regarding the proximal tubule of the kidney, which of the following is CORRECT:
a) consists of a simple squamous epithelium
b) resorbs sodium ions from the filtrate by passive diffusion
c) communicate with the macula densa via gap junctions
d) all of the above
e) none of the above

4. Which of the following is a function of the juxtaglomerular cells of the kidney:
a) secrete renin
b) secrete aldosterone
c) secrete antidiuretic hormone (ADH/Vasopressin)
d) all of the above
e) none of the above

5. Which of the following dynamically regulate water movement across the epithelium of the collecting tubules of the kidney:
a) adherens junctions
b) vasa recta
c) aquaporins
d) all of the above
e) none of the above

6. Regarding the epidermis of the skin, which of the following is CORRECT:
a) it is non-keratinized
b) it arises from the mesoderm
c) keratinocytes are the major cell type
d) all the cells reach the free surface
e) all the cells are attached to the basement membrane

7. Which layer of the epidermis contains the LEAST differentiated cells:
a) stratum corneum
b) stratum granulosum
c) stratum spinosum
d) stratum basale
e) the most apical layer

8. Which of the following distinguishes the papillary layer of the dermis from the reticular layer of the dermis:

a) the lack of capillaries in the papillary layer
b) the presence of loose connective tissue in the papillary layer
c) the presence of sensory corpuscles in the papillary layer
d) all of the above
e) none of the above

9. Which of the following is characteristic of sebaceous glands:

a) have a holocrine secretion mechanism
b) secretory activity is regulated by a hormone produced by Leydig cells of the testis
c) duct is continuous with the canal of the hair follicle
d) all of the above
e) none of the above

10. Which of the following occurs during the follicular phase of the ovarian cycle:

a) theca interna cells produce androstenedione
b) granulosa cells produce estrogen
c) zona pellucida forms
d) all of the above
e) none of the above

11. Which of the following occurs just prior to ovulation:

a) a surge of follicle stimulating hormone
b) a surge of luteinizing hormone
c) a surge of human chorionic gonadotropin
d) all of the above
e) none of the above

12. Which of the following BEST describes the corpus albicans:

a) precursor of the corpus luteum
b) corpus luteum of pregnancy
c) degenerating corpus luteum
d) is part of the tunica albuginea of the ovary
e) is part of the ovarian surface (germinal) epithelium

13. Regarding the proliferative phase of the uterine cycle, which of the following is CORRECT:

a) occurs during days 1- 4 of the menstrual cycle
b) occurs during days 4-14 of the menstrual cycle
c) occurs during days 14-28 of the menstrual cycle
d) occurs in the first few days after fertilization
e) occurs during the last trimester of pregnancy

14. Which of the following is MOST responsible for initiating the LOSS of the functional layer of the uterine endometrium during menstruation:

a) constriction of the straight arteries
b) constriction of the helical arteries
c) increased estrogen production
d) increased progesterone production
e) fertilization of the oocyte

15. Which of the following is found in the loose vasular connective tissue of the testis:
a) Leydig cells
b) rete testis
c) tunica albuginea
d) all of the above
e) none of the above

16. Which of the following contains smooth muscle in its wall that facilitates ejaculation:
a) ductuli efferentes
b) ductus (vas) deferens
c) ejaculatory duct
d) all of the above
e) none of the above

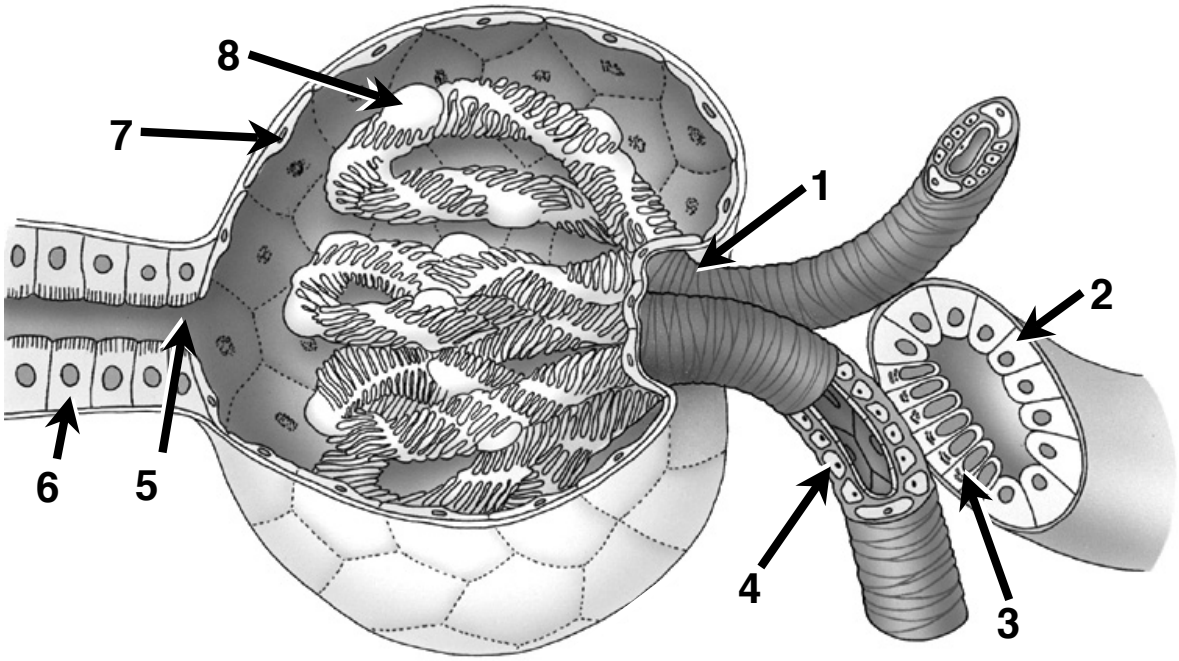
17. Which of the following maintains the flaccid state of erectile tissue in the penis:
a) the parasympathetic nervous system
b) increased blood flow through arteriovenous anastamoses
c) relaxation of the smooth muscle in the walls of arteries that supply the venous sinuses
d) all of the above
e) none of the above

18. What do the parenchyma of the breast and the parenchyma of the prostate have in common:
a) both are compound tubuloalveolar glands
b) both are androgen-responsive
c) both are stimulated to expel their secretory products by oxytocin (OT)
d) all of the above
e) none of the above

End of Multiple Choice Questions - Please Proceed to Short Answer Questions

#19-#31 SHORT ANSWER QUESTIONS

Fig 1: Renal Corpuscle & Associated Structures



19. In Fig 1, which numbered structure best represents the urinary pole:
(write the number) _____

20. In Fig 1, which numbered structure best represents a cell that is part of the parietal layer of Bowman's capsule:
(write the number) _____

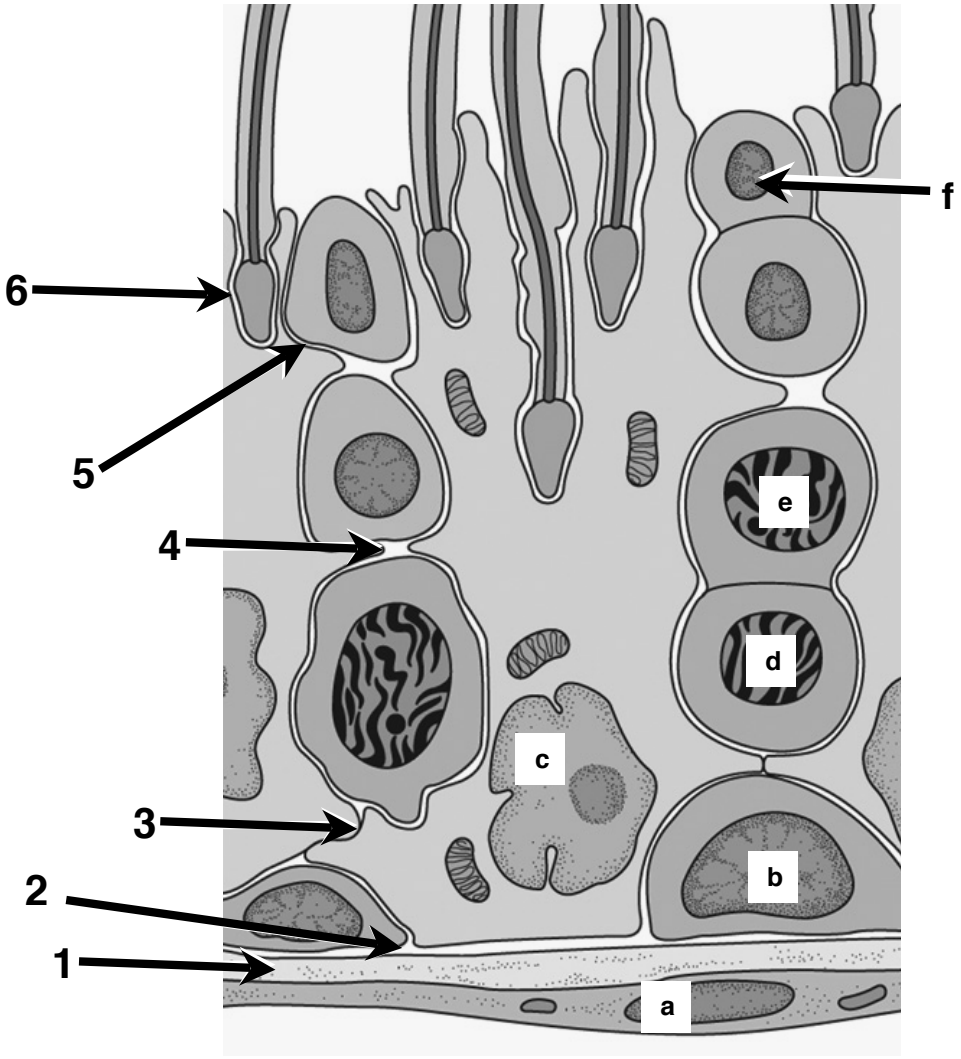
21. In Fig 1, which numbered structure directly responds to changes in urine volume in the distal tubule:
(write the number) _____

22. Name the morphological specializations that increase the apical surface area of the cell that is structure #6 in Fig 1:
(name the specializations) _____

23. Name the cell type that is structure #8 in Fig 1:
(name the cell type) _____

End of Questions Related to Fig 1

Fig 2: Seminferous Epithelium



24. In Fig 2, which numbered structure is the site where the tight junctions are located that most contribute to the blood-testis barrier:

(write the number) _____

25. In Fig 2, what is the name of structure #1, which is extracellular:

*(name the structure)*_____

26. In Fig 2, which lettered cell is in the germ cell lineage and is NOT sequestered from the immune system (i.e. immunoprotected):

(write the letter) _____

27. What is the chromosome number of cell **'f'** in Fig 2:

(haploid? diploid? tetraploid?) _____

28. Name the cell type that is represented by **'c'** in Fig 2:

(name the cell type) _____

End of Questions Related to Fig 2; Proceed to narrative questions

29. A mythical ANAT390 student with an interest in ciliary motility lost his notes on the male reproductive system before he undertook a 4th year cell biology research project where he tried to isolate microtubule motors from the cilia of epididymal epithelial cells. After six months he gave up in disgust. **Why was the student unable to isolate ciliary microtubule motors from the apical appendages of epididymal cells?**

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30. A mythical ANAT390 teaching assistant went to Hawaii for her winter holiday and spent a lot of time in the sun and surf. While she was careful not to get a sunburn, she did get a suntan. **Two weeks after she returned home, which cells of the skin contained the majority of the melanin that was produced in Hawaii.**

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31. A not-so mythical middle-aged ANAT390 instructor recently stayed up really late drinking way too much coffee, the caffeine in which inhibits salt resorption in the tubules of the kidney, to finish preparing for the final examination. The next day he was extremely thirsty**. Why?**

End of 07 Sample Questions