1. The reason why the testies are suspended in the scrotum is
    A. to create extra space for the sex organs
    B. to provide for a cooler temperature
    C. to place sperm storage sites nearer the penis
    D. to reduce the chance of infection from the enteric bacteria
    E. to protect sperms from the immune system

2. Which represents a correct cascade of reproductive hormones in males
    F. LH > GnRH > FSH > testosterone (Leydig cells)
    G. FSH > LH > GnRH > testosterone (Sertoli cells)
    H. GnRH > LH/FSH > testosterone (Leydig cells) + inhibin (Sertoli cells)
    I. FSH > GnRH > testosterone > LH
    J. FSH > GnRH > LH > testosterone (Sertoli cells)

3. The spermatozoon acrosome
    K. contains enzymes helping in penetration of the ovum
    L. contains nutrients
    M. beats so that the sperm can swim
    N. provides the blood-testis barrier
    O. has a high density of mitochondria

4. In the testis, the gonadotropin FSH (follicle stimulating hormone) acts primarily on:
    P. Leydig cells
    Q. spermatocytes
    R. **Sertoli cells**
    S. spermatozoa
    T. vascular endothelium

5. In the testis, the germinal epithelium
    U. lines the seminiferous tubules
    V. produces diploid male gamets
    W. is dependent on testosterone secreted by Sertoli cells
    X. is supporting by Leydig cells
    Y. contains the spermatogonia located in adluminal compartment

6. The prostate gland
    Z. is lined by germinal epithelium
    AA. **is composed of secreting glands that open into the urethra**
    BB. has two zones: inner and peripheral
    CC. produces testosterone
    DD. is divided into head, body and tail region

7. In the eye
    EE. the posterior chamber lies behind the lens
    FF. the lens is suspended from the iris

GG. **the inner part of the cornea is lined by endothelium**
HH. aqueous is produced by the epithelium of cornea
II. the ciliary body nourishes the retina

8. In the retina
JJ. **retinal pigment epithelial cells are responsible for conversion of light energy into nerve action**
KK. the macula contains rod cells
LL. the optic disc has big concentration of photoreceptors
MM. cones are located mainly at the periphery
NN. the inner nuclear layer is composed of bipolar cells

9. The cornea
OO. is opaque and avascular
PP.stroma consists of lamellae of parallel arranged collagen fibers
QQ. is nourished from the vessels of the limbus
RR. contains a lot of pigmented cells
SS. is covered by three-layers epithelium

10. In the inner ear
TT. hair cells have cilia on their surface to detect movement, sound and acceleration
UU. the macula of the saccule detects sound
VV. the ampullae of the semicircular canals detect sound
WW. the vestibular (Reissner's membrane) divides the tympanic cavities
XX. the cochlear duct contains perilymph

11. Part of which of the following layers of the uterus is sloughed off during menstruation?
YY.**endometrium**
ZZ. myometrium
AAA. serous layer
BBB. peritoneum

12. A primary oocyte with a layer of granulose cells around it is called :
CCC. primary follicle
DDD. secondary follicle
EEE. mature follicle
FFF. corpus luteum
GGG. corpus albicans

13. In the mature follicle:
HHH. an antrum is present
III. a tissue layer, called a theca, is formed surrounding the follicle
JJJ. a clear layer, called the zona pellucida, forms around the oocyte
KKK. **all the statements are true**

14. Follicles are stimulated to develop by
    - LLL. **FSH**
    - MMM. LH
    - NNN. Estrogen
    - OOO. Progesterone
    - PPP. ADH

15. After ovulation, the ruptured follicle is transformed into a glandular structure called the
    - QQQ. mature follicle
    - RRR. **corpus luteum**
    - SSS. corpus cavernosum
    - TTT. corpus albicans
    - UUU. corpus striatum

16. Which of the following are organs where activation of T and B cells usually occurs
    - VVV. bone marrow
    - WWW. thymus
    - XXX. **lymph nodes**
    - YYY. lymph vessels
    - ZZZ. all above

17. The gland that controls functional maturation of lymphocytes is the
    - ZZZ. spleen
    - AAAA. pituitary
    - BBBB. thyroid
    - CCCC. **thymus**
    - DDDD. lymph nodes

19. Which of the following cells produce antibodies
    - JJJJ. T-lymphocytes
    - KKKK. **B-lymphocytes**
    - LLLL. monocytes
    - MMMM. phagocytes
    - NNNN. both B- and T-lymphocytes

20. The two anatomical divisions of the nervous system are
    - OOOO. somatic and peripheral
    - PPPP. peripheral and autonomic
    - QQQQ. **central and peripheral**
    - RRRR. central and autonomic

21. The two major types of cells composing neural tissue are
    - A. **neurons and neroglia**
    - B. astrocytes and microglia

C. somas and axons
D. satellite cells and Schwann cells

22. The neuroglia that form myelin in the CNS and guide the development of neurons in the CNS are
    A. neurolemmocytes
    B. microglia
    C. astrocytes
    D. **oligodendrocytes**

23. All of the following are functions of the nervous system except
    A. senses changes
    B. analyzes changes
    C. stores calcium
    D. responses to changes

24. Which cell type in the epidermis is most numerous
    A. melanocytes
    B. Langerhans cells
    C. Merkel cells
    D. **keratinocytes**

25. All the statements about the basal layer of epidermis are true except:
    A. responsible for constant production of keratinocytes
    B. composed of cuboidal or columnar keratinocytes
    C. contains scattered melanocytes
    D. **contains keratinosomes**
    E. is attached to the basement membrane by hemidesmosomes

26. Which one statement about melanocytes is true
    A. **have long cytoplasmic processes which extend between keratinocytes**
    B. also act as mechanoreceptors
    C. are greatly increased in number in dark-skinned races
    D. are pigmented because of the melanin they contain

27. All the statements about skin appendages are true except:

A. **sebaceous gland units usually open directly onto the skin surface**
B. eccrine glands are particularly frequent on the palms and soles
C. sebum produced by sebaceous cells is lipid mixture
D. erector pili muscles control the position of the hair shafts

28. In the oral cavity

A. the surface of the anterior two-thirds of the tongue is raised in a series of elevations called papillae
B. the tongue muscle is composed of smooth muscle fibers
C. the floor of the oral cavity is lined by keratinized stratified epithelium
D. the upper surface of the tongue is covered by columnar ciliated cells
E. salivary gland secrete mainly sebaceous product

29. In the small bowel

F. plicae are seen macroscopically as large folds arranged circularly around the lumen
G. enterocytes have a well-developed ciliae which forms the brush border
H. Brunner's glands are found in jejunum
I. goblet cells are more numerous than enterocytes
J. the stromal core of each villus is composed mainly of hyaline cartilage

30. All the following statements about the large intestine are true except

K. the large intestinal epithelium is specialized for the mucous secretion, salt and water absorption
L. the appendix is a small appendage arising from the cecum
M. **villi are less numerous than in the small intestine**
N. mucosa is characterized by long straight tubular glands of columnar epithelium
O. the muscularis consists of two smooth muscle layers

31. The epithelial cells of the thyroid acinus

P**. synthesize and secrete calcitonin**
Q. can break down thyroglobulin with the release of active thyroid hormones
R. are controlled by TSH from the hypothalamus
S. synthesize mainly triiodothyronine (T3)
T. are surrounded by network of ducts

32. The parathyroid glands:

U. secrete calcitonin
V**. contain chief cells which are the main hormone secretors**
W. contain oxyphil cells which produce parathormone
X. are located between the thyroid acini
Y. are controlled by THS from the pituitary

33. Which of the following statements about adrenals are true except

Z. are located on the upper poles of the kidney

AA. zona reticularis secretes small amount of androgenic steroids
BB. zona fasciculata occupies most of the adrenal cortex
CC. zona glomerulosa secretes glucocorticoids
DD. the adrenal medulla secretes catecholamines

34. In which component of the respiratory tract gaseous exchange ocurrs
EE. terminal bronchiole
FF. **alveolus**
GG. respiratory bronchiole
HH. larynx
II. trachea

35. Type 1 pneumocytes
JJ. are big, round cells
KK. secrete surfactant
LL. form the wall of respiratory bronchiole
MM. are ciliated cells
NN. **form air-blood barrier**

36. Type 2 pneumocytes
a. **secrete surfactant or they can differentiate into type 1**
b. form air-blood barrier
c. are flat, thin cells
d. phagocytose inhaled bacteria
e. form the wall of respiratory bronchiole

37. The glomerular filtration barrier comprises all the following except
f. the podocyte layer
g. glomerular mesangial cells
h. endothelial cells
i. the unusually thick glomerular capillary basement membrane
j. **endothelium of the afferent arteriole**

38. The juxtaglomerular apparatus:
k. secretes angiotensin and renin
l. **lies near the urinary pole of renal corpuscle**
m. forms the glomerular filtration barrier
n. lies near the proximal convoluted tubule
o. contains macrophages

39. In the lower urinary tract

p. **the ureter and bladder are lined by transitional epithelium**
q. the ureter has three muscle layers
r. the bladder has two muscle layers
s. urothelium has always 2 cell layers
t. occurs the final concentration of urine