

一、選擇題：(60%)

1. ( ) Homeostasis is best thought of as being a state of :  
a) constant fluctuation. b) stasis. c) dynamic constancy. d) inconsistency.
2. ( ) Multinucleated cells include  
a) smooth muscle cells. b) skeletal muscle cells. c) cardiac muscle cells. d) all of the above.
3. ( ) Cells which will undergo apoptosis would contain large numbers or quantities of  
a) centrioles. b) golgi apparatus. c) rough endoplasmic reticulum. d) lysosomes.
4. ( ) Excessive salt consumption  
a) increases the release of antidiuretic hormone. b) decreases the osmolality of the blood.  
c) stimulates increased urine production. d) decreases the activity of osmoreceptors.
5. ( ) Smooth muscle cells :  
a) contain intercalated discs. b) contain A and I bands. c) are innervated by somatic nerves.  
d) may contain gap junctions.
6. ( ) Which of the following would be found in plasma but not in serum?  
a) albumin. b) fibrinogen. c) glucose. d) lipoproteins.
7. ( ) Fenestrated capillaries are found in the:  
a) liver and bone marrow. b) adipose tissue. c) endocrine glands. d) skeletal muscles.
8. ( ) The sympathetic division of the autonomic nervous system is also known as the  
a) thoracolumbar b) thoracosacral c) cranio-lumbar d) cranio-sacral, division
9. ( ) The adrenal cortex is not involved in  
a) regulation of blood glucose. b) regulation of  $\text{Na}^+$  balance.  
c) regulation of reproduction. d) regulation of  $\text{Ca}^{2+}$  balance.
10. ( ) The second messenger mediating the effects of norepinephrine on the heart would be  
a) increased cyclic AMP. b) decreased intracellular cyclic AMP.  
c) increased intracellular  $\text{Ca}^{2+}$ . d) decreased  $\text{Ca}^{2+}$ .
11. ( ) Action potential transmission is decreased if which cells are damaged?  
a) astrocytes. b) microglia. c) oligodendrocytes. d) satellite cells.
12. ( ) The highest oxygen affinity is demonstrated by  
a) hemoglobin A. b) hemoglobin F. c) hemoglobin S. d) myoglobin.
13. ( ) Nitric oxide  
a) is a chemical messenger activating adenylate cyclase. b) stimulates the dilation of blood vessels.  
c) is produced from L-asparagine. d) all of the above.
14. ( ) The enzyme with the most basic pH optimum is  
a) pancreatic lipase. b) pepsin. c) maltase. d) salivary amylase.
15. ( ) Which of the following may be beneficial in treating gastric ulcers?  
a) epinephrine. b) histamine blockers. c) gastric inhibitory peptide. d) carboxypeptidase.
16. ( ) Phagocytic cells include all of the following **except**  
a) macrophages. b) Kupffer cells. c) lymphocytes. d) microglia.
17. ( ) Colostrum is high in  
a) IgA. b) IgD. c) IgE. d) IgG.
18. ( ) Bacterial endotoxins induce fever by stimulating the production of  
a) nitric oxide. b) gamma globulin. c) interleukin 1  $\beta$ . d) interferons.

19. ( ) Gonadotropin-releasing hormone (GnRH) is secreted by the  
a) gonads. b) anterior pituitary. c) posterior pituitary. d) hypothalamus.
20. ( ) The term capacitation refers to the  
a) formation of the sperm head, body, and tail.  
b) process by which sperm become able to fertilize an ovum.  
c) recognition of the ova by approaching sperm.  
d) removal of the sperm body and tail after fertilization.

二、非選擇題：(40%)

1. 試解釋下列各名詞：24%

A. Intramembranous vs Endochondral ossification: B. Enterohepatic circulation :

C. Active vs. Passive immunization :

D. PSS(Porcine stress syndrome) and PSE :

2. 請翻譯以下英文敘述之意涵：16%

*History of twentieth-century physiology (limited to one citations per decade)*

1910 Sir Henry Dale describes properties of histamine.

1954 Hugh Huxley, Jean Hanson, R. Niedergerde and Andrew Huxley propose the sliding filament theory of muscle contraction.

1986 Stanley Cohen and Rita Levi-Montalcini win the Nobel Prize for their discoveries of growth factors regulating the nervous system.

1998 Robert Furchgott, Louis Ignarro and Ferid Murad win the Nobel Prize for discovering the role of nitric oxide as a signaling molecule in the cardiovascular system.