

系所組別：細胞生物與解剖學研究所

考試科目：生理學

考試日期：0223，節次：1

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

I. Multiple Choices, 20 questions, each question has one correct answer. Total 80 points, 4 分/題.

1. Which of the following statement about photoreceptors in the retina is **not correct**?
 - A. Rod is best for absorbing green light
 - B. Cone is functioning for dark adaptation
 - C. Cone is functioning better for visual acuity
 - D. Fovea contains only cones

2. During muscle contraction which of the sarcomere component will not change its length?
 - A. I band
 - B. A band
 - C. H zone
 - D. Z lines

3. Which of the following is agranular leukocyte?
 - A. Neutrophils
 - B. Eosinophils
 - C. Lymphocyte
 - D. Basophils

4. Which of the following statement about composition of blood is **correct**?
 - A. Globulins account for the most of the plasma proteins
 - B. Serum contains fibrinogen
 - C. Circulating life span of red blood cell is about 120 days.
 - D. Lymphocytes account for 54 to 62% of leukocytes

5. Which of the following statement about electrocardiogram is **correct**?
 - A. P wave is created by ventricle depolarization
 - B. QRS wave corresponds to contraction of ventricles
 - C. QRS wave corresponds to the opening of AV valves
 - D. Depolarization of ventricle produces the T wave

6. The RNA nucleotide base that pairs with adenine in DNA is
 - A. Thymine
 - B. Cytosine
 - C. Guanine
 - D. Uracil

(背面仍有題目，請繼續作答)

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7. Enzymes increase the rate of chemical reactions by
 - A. Increasing the body temperature
 - B. Increasing the reactant molecules affinity for each other
 - C. Decreasing the blood pH
 - D. Decreasing the activation energy of reactants

8. Which of the following statement about neuron is **correct**?
 - A. Neuron often has only one axon
 - B. Axon hillock contains many mitochondria
 - C. Node of Ranvier has high concentration of K^+ channel
 - D. Presence of myelin slowing down the nerve conducting velocity

9. Which of the following statement about autonomic nervous system function is **not correct**?
 - A. Sympathetic nerve inhibit mucous gland secretion
 - B. Parasympathetic nerve decrease heart rate
 - C. Sympathetic nerve induces bronchioles dilation
 - D. Parasympathetic nerve stimulation causes penis ejaculation

10. About two thirds of the glomerular ultrafiltrate is reabsorbed in
 - A. The proximal tubule
 - B. The distal tubule
 - C. The loop of Henle
 - D. The collecting duct

11. When a substance's clearance is greater than that of inulin, what can you conclude about this substance?
 - A. It is not filtered
 - B. It is filtered, but neither reabsorbed nor secreted
 - C. It is partially filtered and reabsorbed
 - D. It is filtered and secreted

12. Which of the following is a water-soluble vitamin
 - A. Vitamin A
 - B. Thiamine
 - C. Vitamin D
 - D. Vitamin K

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13. During the first 10 weeks of pregnancy, corpus luteum is maintained by
- A. hCG
 - B. LH
 - C. Estrogen
 - D. Progesterone
14. Which of the following statement about placenta is **correct**?
- A. The placenta is formed from fetal chorion frondosum and maternal decidua basalis
 - B. Chorionic gonadotropin has FSH-like functions
 - C. Amniocentesis can provide fetal genetic information as 12 weeks' gestation
 - D. Placenta contains mixed fetal and maternal blood to exchange gas and metabolics
15. Which of the following statement about long-term potentiation is **not correct**?
- A. is important in learn and memory
 - B. enhances synaptic transmission
 - C. is important in short-term memory
 - D. causes enlarged action potential amplitude
16. Which of the following is not characteristic for apoptosis?
- A. programmed cell death
 - B. nuclear fragmentation
 - C. accompanied with inflammation
 - D. chromatin condensation
17. Stress activates which of the following endocrine axis?
- A. hypothalamus-pituitary gland-testis
 - B. hypothalamus-pituitary gland-ovary
 - C. hypothalamus-pituitary gland-thyroid
 - D. hypothalamus-pituitary gland-adrenal cortex
18. Which of the following statement about gastric secretion is **correct**?
- A. cephalic phase mainly due to stimulation of vagus nuclei in the brain
 - B. pH of gastric juice below 2.5 inhibits gastric phase
 - C. fat in chyme stimulates gastric secretion
 - D. gastrin secretion plays an important role in cephalic phase secretion

(背面仍有題目，請繼續作答)

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19. Which of the following statement about starch digestion is **not correct**?

- A. it begins in the mouth
- B. it occurs in the stomach
- C. it requires amylase
- D. it is absorbed by intestine

20. Strength of muscle contraction is mainly determined by

- A. amplitude of action potential
- B. frequency of action potential
- C. speed of depolarization
- D. threshold of action potential

II. Briefly describe the source and function of the following CELL

OR HORMONES (5 questions, 20 points, 4 分/題)

- 1. Schwann cell
- 2. Leydig cell
- 3. Secretin
- 4. atrial natriuretic peptide
- 5. oxytocin