編號: 302

# 國立成功大學 105 學年度碩士班招生考試試題

系 所:藥理學研究所

考試科目:生理學

考試日期:0228,節次:3

#### 第1頁,共3頁

※ 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。

#### Part I: 50%

- I. Each question below contains five suggested answers. Choose the <u>one best response</u> to each question. (20%)
- 1. Which of the following is an inhibitory neurotransmitter in the central nervous systems (CNS)?
  - (A) Serotonin
  - (B) Glutamate
  - (C) γ-Aminobutyric acid (GABA)
  - (D) Norepinephrine
- 2. Which type of cell in the visual cortex responds best to a moving bar of light?
  - (A) Simple
  - (B) Complex
  - (C) Bipolar
  - (D) Ganglion
- 3. Which receptor mediates constriction of arteriolar smooth muscle?
  - (A) Muscarinic receptors
  - (B) α1 receptors
  - (C)  $\beta$ 1 receptors
  - (D) β2 receptors
- 4. In which vascular bed does hypoxia cause vasoconstriction?
  - (A) Skin
  - (B) Muscle
  - (C) Coronary
  - (D) Pulmonary
- 5. Which of the following substances or combination of substances could be used to measure interstitial fluid volume?
  - (A) Insulin and radioactive albumin
  - (B) Mannitol
  - (C) Insulin and D<sub>2</sub>O
  - (D) Insulin alone
- 6. Which of the following is the site of Na<sup>+</sup>-bile acid cotransport?
  - (A) Gastric antrum

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#### 第2頁,共3頁

- (B) Gastric fundus
- (C) Ileum
- (D) Duodenum
- 7. Which of the following pancreatic secretions has a receptor with four subunits, two of which have tyrosine kinase activity?
  - (A) Insulin
  - (B) Somatostatin
  - (C) Pancreatic lipase
  - (D) Glucagon
- 8. The action of which of the following hormones is prevented by inhibitors of microtubules?
  - (A) Estradiol
  - (B) Prolactin
  - (C) Oxytocin
  - (D) Insulin
- 9. Free water clearance by the kidney is increased by which of the following?
  - (A) Heart failure
  - (B) Renal failure
  - (C) Diabetes mellitus
  - (D) Diabetes insipidus
- 10. Metabolic acidosis is caused by which of the following?
  - (A) Hypovolemia
  - (B) Hypoaldosteronism
  - (C) Hypokalemia
  - (D) Hypocalcemia

### II. Explain following terms. (20%)

- 1. Insulin resistance
- 2. Diuretics
- 3. Systolic pressure
- 4. Acinar cells
- 5. Gluconeogenesis
- III. Please describe adenylate cyclase mechanism. (10%)

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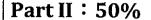
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第3頁,共3頁



- 1. Briefly compare among endocrine, paracrine, autocrine and nervous system. (16%) Give examples to each system. (4%)
- 2. What are the mechanism involved in maintaining plasma pH within the range 7.38-7.42? (10%)
- 3. Compare between respiratory alkalosis and metabolic alkalosis. (10%)
- 4. How can altered automaticity and conduction cause cardiac arrhythmias? (10%)