

單選題 ( 每題 3% )

※ 注意：請於試卷內之「選擇題作答區」依序作答。

1. Which of the following ions has higher concentration in the extracellular fluid than in the intracellular fluid? (A) Na<sup>+</sup> (B) K<sup>+</sup> (C) organic anion (D) none of the above
2. Which of the following will block transmission of action potentials when applied to a nerve axon? (A) calcium channel blocker (B) sodium channel blocker (C) N-methyl-D-aspartate blocker (D) gamma butyric acid blocker.
3. Which of the following results in an excitatory post-synaptic potential? (A) post-synaptic facilitation (B) post-synaptic inhibition (C) post-synaptic occlusion (D) post-synaptic distinction
4. Which of the following is the cause of 'chemical fatigue'? (A) actin disruption (B) myosin interruption (C) myosin-actin uncoupling (D) neurotransmitter depletion
5. Which of the following is the energy source for the gliding of myosin on the actin? (A) ATP (B) NADPH (C) FAD (D) phosphocreatinine
6. Which of the following adrenergic receptor mediates the inotropic effect of the cardiac myocyte? (A) alpha 1 (B) alpha 2 (C) beta 1 (D) beta 2
7. Which of the following Brodman's area is recognized as the primary somatic sensory cortex? (A) area 312 (B) area 42 (C) area 17 (D) area 1
8. Which of the following structure connects the right and the left cerebral hemisphere? (A) internal capsule (B) corpus callosum (C) nucleus propiosis (D) substantia gelatinosa
9. Which of the following coagulating factors is activated by the thrombin? (A) factor I (B) factor II (C) factor III (D) factor IV
10. Which of the following segment displays maximal resistance in the circulation system? (A) ascending aorta (B) aortic arch (C) abdominal aorta (D) arteriole
11. Which of the following will increase fluid exchange from the capillary to the interstitial space? (A) increased capillary hydrostatic pressure (B) increased capillary oncotic pressure (C) increased thickness of the capillary wall (D) increased compliance in the capillary wall
12. Which of the following substance can be used to measure glomerular filtration rate? (A) insulin (B) imidazole (C) isopretenolol (D) inulin
13. Which of the following is the reagent blocks triple ions reabsorption in the thick ascending loop of Henle? (A) furosemide (B) hydrochlorothiazide (C) spironolactone (D) amiloride
14. Which of the following is the form that carbon dioxide transported in the erythrocyte (red blood cell)? (A) free bicarbonate (B) dissolved gas (C) phosphate-conjugated (D) hemoglobin-bound
15. Which of the following is a hormone triggers bile release? (A) gastric inhibitory peptide (B) pepsinogen (C) gastrin (D) cholecystokinin
16. Which of the following is gastrointestinal hormone? (A) pepsin (B) pepsinogen (C) pancreozymin (D) pro-carboxypolypeptidase
17. Which of the following is the condition that a patient display increased

見背面

- PO<sub>2</sub> (partial pressure of oxygen) and decreased PCO<sub>2</sub> (partial pressure of carbon dioxide) in the arterial blood gas (ABG) analysis? (A) perfusion-limited disease (B) ventilation-limited disease (C) perfusion-ventilation matched disease (D) ventilation-perfusion matched disease
18. Which of the following is characterized by an unchanged FEV<sub>1</sub>/VC (the forced expiratory volume at the first second/vital capacity) but markedly reduced vital capacity? (A) obstructive pulmonary disease (B) restrictive pulmonary disease (C) perfusion limited disease (D) anemic disease
19. Which of the following is the nucleus where the anti-diuretic hormone is synthesized and released into the blood stream? (A) amygdala (B) para-ventricular nucleus (C) organum vasulosum lamina terminalis (D) postrema
20. Which of the following is the cell that tri-iodothyroxine synthesis? (A) follicular cell (B) parafollicular cell (C) chief cell (D) pacemaker cell

**問答題 (每題 10%)**

※ 注意：請於試卷內之「非選擇題作答區」標明題號依序作答。

1. Please give a diagram illustrating the changes in the volume of the left ventricle during a cardiac cycle, and specify each stage in this cycle. (10%)
2. Explain how the total peripheral resistance of the circulation system can be estimated in a human subject, please. (10%)
3. Explain how oxygen is transported in the blood, and give the percentage of each component, please. (10%)
4. Please explain how glucose is re-absorbed by the renal epithelial cell, please. (10%)

**試題隨卷繳回**