

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
公一	普生	梁文傑	93年1月15日第 一 節		

* ①請注意本試題共 8 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。
 ②每張試題卷務必填寫(學號)、(姓名)。

公衛生物學考題

選擇題(每題1%，共12分)，請將答案寫在答案欄內。

1. 古生代末期(約2.8億年前)地球上的植物霸主為①藍綠藻②苔蘚類③蕨類④裸子類植物
2. 下列質體中具有合成澱粉及蛋白質作用功能的為①葉綠體(chloroplast)②有色體(chromoplast)③白色體(leucoplast)④皆不具此能力
3. 可以儲存細胞代謝產物的胞器為①細胞核②液泡③質體④內質網
4. 細胞分裂期中，合成有絲分裂構成成分的時期為①G1 ②S ③G2 ④M
5. 植物細胞的分化受制於①環境②基因③位置④上述因素皆會影響
6. 下列組織細胞中具物質傳遞或儲存功用的是①皮層細胞②石細胞③木栓細胞④厚角細胞
7. 為防止大氣產生污染時可以何種水果進行監測? ①蕃茄②柳丁③草莓④香蕉
8. 下列成分何者必參予葉綠素構成成分? ①Ca ②Fe ③Zn ④Mo
9. 進行春化作用的植物需將植物置於何種溫度下才能促進其開花? ①4 ②14 ③24 ④34°C
10. 下列植物生長變化何者屬於躲避不良環境的例子? ①葉片上的角質化②植物體內含精油③形成針狀葉④縮短生活週期
11. 下列何種污染源會抑制種子萌芽時蛋白水解酶的活性? ①二氧化硫②鉛③汞④鎘
12. 下列校園植物中葉片屬於對生的植物為①楓②槭③榕④山茶花

答案欄：(每題1%)

1.	2.	3.	4.	5.	6.
7.	8.	9.	10.	11.	12.

臺北醫學大學 92 學年度第 一 學期 期中 考試 (命題紙)

系級科	目	授課教師	考試日期	學號	姓名
公一	普生	陳彥州	93年1月15日第1節		

*①請注意本試題共 8 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。
 ②每張試題卷務必填寫(學號)、(姓名)。

Two points for each question

- Some of the homologous structures show no importance to a current organism, but which had important functions in ancestors. We call these structures are (A) vestigial organs (B) homologous organs (C) heterologous organs (D) original organs (E) others
- Islands have many species of plants and animals that are found nowhere else in the world called (A) endemics (B) epidemics (C) biogeography (D) end product (E) others
- Phenyketonuria (PKU) is a recessive inherited disease, and about 1 in 10,000 babies born in the United States is born with PKU. By Hardy-Weinberg theorem, what is the frequency of carriers (heterozygous individuals) in USA? (A) 3 % (B) 2 % (C) 5 % (D) 1 % (E) 0.5 %.
- Populations at Hardy-Weinberg equilibrium must satisfy five conditions except (A) very large population size (B) no migrations (C) no net mutations (D) no natural selection (E) selective mating
- Genetic drift occurs due to a decrease in population sizes. Which effect causes genetic drift? (A) founder effect (B) thermo effect (C) mutation effect (D) random effect (E) others
- Geographic variation in the form of graded change in a trait along a geographic axis is called (A) horizontal (B) latitude (C) cline (D) climb (E) others

臺北醫學大學 92 學年度第 一 學期 期中 考試 (命 試) 題紙

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
公一	普 生	阿 珠 慧	93年1月15日第 1 節		

*①請注意本試題共 8 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。
 ②每張試題卷務必填寫(學號)、(姓名)。

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. Two points for each question

Please write down your answers in the following table.

1.	2.	3.	4.	5.	6.	7.	8.
9.	10.	11.	12.	13.	14.	15.	16.
17.	18.	19.	20.	21.	22.	23.	24.
25.				26.			

- Which of the following is an example of countercurrent flow?
 - the flow of air within the primary bronchi of a human and the flow of blood within the pulmonary veins
 - the flow of water across the skin of a frog and the flow of blood within the ventricle of its heart
 - the flow of fluid out of the arterial end of a capillary and the flow of fluid back into the venous end of that same capillary
 - the flow of water across the gills of a fish and the flow of blood within those gills
 - the flow of blood in the dorsal vessel of an insect and the flow of air within its tracheae
- Which of the following statements about humoral immunity is *correct*?
 - It primarily defends against fungi and protozoa.
 - It primarily defends against bacteria and viruses that have already infected cells.
 - It protects the body against cells that become cancerous.
 - It is mounted by lymphocytes that have matured in the bone marrow.
 - It is responsible for transplant tissue rejection.
- Each indication below is a clinical characteristic of inflammation *except*
 - redness.
 - pain.
 - edema.
 - increased blood flow.
 - decreased temperature.
- Which of the following vitamins is *incorrectly* associated with its use?
 - vitamin C = synthesis of connective tissue
 - vitamin E = protection of membrane phospholipids from oxidation
 - vitamin D = calcium absorption and bone formation
 - vitamin A = incorporation into the visual pigment of the eye
 - vitamin K = production of red blood cells

臺北醫學大學 92 學年度第 一 學期 期中 考試 (命題) 題紙

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
公一	普生	阮淑慧	93年1月15日第1節		
*①請注意本試題共 8 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。 ②每張試題卷務必填寫(學號)、(姓名)。					

- 5) All of the following statements about antibodies are true *except*:
 - A) Plasma B cells are responsible for the production of antibodies.
 - B) Antibodies bind with foreign cells and destroy them.
 - C) Antibodies are immunoglobulin proteins.
 - D) Antibodies act as signals to blood complement proteins or phagocytes.
 - E) The structure of antibodies includes both a constant and a variable region.

- 6) Which of the following is an example of positive feedback in the immune system?
 - A) Cells release a cytokine that stimulates these cells to divide and release more of the cytokine.
 - B) Memory cells proliferate and produce antibodies.
 - C) Large antigens with many repeating antigenic determinant sites can stimulate B cells without the aid of T cells.
 - D) Cytotoxic cells release substances that attract macrophages.
 - E) Both A and B are examples of positive feedback in the immune system.

- 7) Which of the following is true of interstitial fluid?
 - A) It forms the extracellular matrix of connective tissue.
 - B) It is found inside the small intestine.
 - C) It provides for the exchange of materials between blood and cells.
 - D) It is the internal environment found in animal cells.
 - E) It is composed of blood.

- 8) All of the following are functions of the mammalian kidney *except*
 - A) production of urea as a waste product of protein catabolism.
 - B) water reabsorption.
 - C) filtration of blood.
 - D) regulation of salt balance in the blood.
 - E) excretion of nitrogenous waste.

- 9) Most of the carbon dioxide carried by the blood in humans is carried as
 - A) carbonic acid in the erythrocytes.
 - B) bicarbonate attached to hemoglobin.
 - C) CO₂ attached to hemoglobin.
 - D) CO₂ dissolved in the plasma.
 - E) bicarbonate ions in the plasma.

- 10) If, during protein starvation, the osmotic pressure on the venous side of capillary beds drops below the hydrostatic pressure, then
 - A) most carbon dioxide will be bound to hemoglobin and carried away from tissues.
 - B) hemoglobin will not release oxygen.
 - C) fluids will tend to accumulate in tissues.
 - D) the pH of the interstitial fluids will increase.
 - E) plasma proteins will escape through the endothelium of the capillaries.

臺北醫學大學 92 學年度第 一 學期 期中 考試 (命題) 題紙

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
公一	普生	陳淑慧	92年1月15日第1節		
* ①請注意本試題共 8 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。 ②每張試題卷務必填寫(學號)、(姓名)。					

- 11) Which of the following is an example of positive feedback?
- A) An increase in blood sugar concentration increases the amount of the hormone that stores sugar as glycogen.
 - B) A decrease in blood sugar concentration increases the amount of the hormone that converts glycogen to glucose.
 - C) An increase in calcium concentration increases the amount of the hormone that stores calcium in bone.
 - D) A decrease in calcium concentration increases the amount of the hormone that releases calcium from bone.
 - E) An infant's suckling at the mother's breast increases the amount of the hormone that induces the release of milk from the mammary glands.
- 12) Human plasma proteins include which of the following?
- I. fibrinogen
 - II. hemoglobin
 - III. immunoglobulin
- A) I only
 - B) II only
 - C) I and III only
 - D) II and III only
 - E) I, II, and III
- 13) Which of the following characteristics of blood best explains its classification as connective tissue?
- A) It contains more than one type of cell.
 - B) It is contained in vessels that "connect" different parts of an organism's body.
 - C) Its cells can move from place to place.
 - D) It is found within all the organs of the body.
 - E) Its cells are widely dispersed and surrounded by a fluid.
- 14) A patient reports severe symptoms of watery, itchy eyes and sneezing after being given a flower bouquet as a birthday gift. A reasonable initial treatment would involve the use of
- A) sterile pollen.
 - B) a vaccine.
 - C) antihistamines.
 - D) monoclonal antibodies.
 - E) complement.
- 15) Cardiac muscle is
- A) smooth and involuntary.
 - B) striated and unbranched.
 - C) striated and voluntary.
 - D) striated and branched.
 - E) smooth and voluntary.

臺北醫學大學 92 學年度第 一 學期 期中 考試 (命 試) 題紙

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
公一	普 生	阮 珠 慧	93 年 1 月 15 日 第 1 節		

※①請注意本試題共 8 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。
 ②每張試題卷務必填寫(學號)、(姓名)。

- 16) Cows are able to survive on a diet consisting almost entirely of cellulose because
- the cow's saliva has enzymes capable of digesting cellulose.
 - cows are autotrophic.
 - cows have cellulose-digesting, symbiotic microorganisms in their rumens.
 - the cow, like the rabbit, reingests its feces.
 - cows can manufacture all 15 amino acids out of sugars in the liver.
- 17) Which of the following tissues lines the kidney ducts?
- epithelial
 - connective
 - adipose
 - smooth muscle
 - nervous
- 18) Which example best describes a homeostatic control system?
- The kidneys excrete salt into the urine when dietary salt levels rise.
 - A blood cell shrinks when placed in a solution of salt and water.
 - The blood pressure increases in response to an increase in blood volume.
 - Motility in the digestive tract increases following a meal.
 - The core body temperature of a runner is allowed to gradually rise from 37°C to 45°C.
- 19) What is complement?
- a form of interferon
 - a specialized white blood cell
 - a set of antigens
 - a hormone from the thymus
 - a group of proteins
- 20) What is the reason that fluid is forced out of systemic capillaries at the arteriolar end?
- The osmotic pressure of the interstitial fluid is greater than that of the blood.
 - The hydrostatic pressure of the blood is less than that of the interstitial fluid.
 - The hydrostatic pressure of the blood is greater than the osmotic pressure of the interstitial fluid.
 - The osmotic pressure of the blood is greater than the hydrostatic pressure of the interstitial fluid.
 - The osmotic pressure of the interstitial fluid is greater than the hydrostatic pressure of the blood.
- 21) A patient has a blood pressure of 120/75, a pulse rate of 40 beats/min, a stroke volume of 70 ml/beat, and a respiratory rate of 25 breaths/min. This person's cardiac output per minute will be
- 1000 ml.
 - 500 ml.
 - 1750 ml.
 - 2800 ml.
 - 4800 ml.

臺北醫學大學 92 學年度第 一 學期 期中 考試 (命) 題紙

系 級 科	目	授 課 教 師	考 試 日 期	學 號	姓 名
公 - 普 生		許 瑞 慧	93 年 1 月 15 日 第 1 節		

*①請注意本試題共 8 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。
 ②每張試題卷務必填寫(學號)、(姓名)。

- 22) Which, if any, of the following hormones would not be secreted in a sexually mature, premenopausal woman?
- estrogen
 - luteinizing hormone
 - progesterone
 - testosterone
 - All of the choices would be secreted.
- 23) Which of the following is not a function of epinephrine?
- increased breathing rate
 - increase in blood pressure
 - increased absorption of glucose by the digestive tract
 - increased heart rate
 - release of glucose from the liver
- 24) Why do some hormones need to bind to a plasma-membrane receptor to activate a target cell?
- They bind to too many types of cells.
 - They do not bind to receptors on the surface of the target cell.
 - They are not water-soluble.
 - They require activation by ATP.
 - They cannot cross cell membranes.
- 25) In human females, the ovarian cycle begins when
- the level of progesterone drops precipitously.
 - the levels of FSH and LH drop precipitously.
 - the levels of estrogen reach their maximum.
 - the hypothalamus increases its release of FSH and LH.
 - the hypothalamus stimulates the anterior pituitary to increase its output of FSH and LH.
- 26) How do action potentials relay different intensities of information?
- by changing in amplitude relative to the strength of the stimulus
 - by changing in duration relative to the strength of the stimulus
 - by changing in speed of travel relative to the strength of the stimulus
 - by changing in shape relative to the strength of the stimulus
 - by changing in frequency relative to the strength of the stimulus

臺北醫學大學 92 學年度第 一 學期 期中 考試 (試) 命題紙

系 級	科 目	授 課 教 師	考 試 日 期	學 號	姓 名
公一	普生	韓伯樺	93年1月15日第1節		
*①請注意本試題共 8 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。 ②每張試題卷務必填寫(學號)、(姓名)。					

Ecology: Three points for each question

1. Gause's Competitive exclusion principle
2. Learning type
3. Niche
4. Dominance hierarchy
5. Social behavior
6. Biosphere
7. Limiting factor
8. Age-structure diagram