

# 國立宜蘭大學

## 104 學年度轉學招生考試

(考生填寫)

准考證號碼：

### 生物學試題

---

#### 《作答注意事項》

- 1.請先檢查准考證號碼、座位號碼及答案卷號碼是否相符。
- 2.考試時間：80 分鐘。
- 3.本試卷共有選擇題 50 題，一題 2 分，共計 100 分。
- 4.請將答案寫在答案卷上（於本試題上作答者，不予計分）。
- 5.考試中禁止使用手機或其他通信設備。
- 6.考試後，請將試題卷及答案卷一併繳交。
- 7.本試卷採雙面影印，請勿漏答。
- 8.應試時不得使用電子計算機。

Choose a correct or the best answer for each question (每題選出一個正確或最佳的答案):

- ( ) 1. Which of the following molecules are thought to have been absent from the very early atmosphere? (A) water vapor (B) carbon dioxide (C) hydrogen (D) oxygen (E) methane
- ( ) 2. What may have been the first informational molecule? (A) DNA (B) a protein (C) RNA (D) a saccharide (E) a peptide
- ( ) 3. Which of the following organelles are endosymbionts of eukaryotic cells? (A) Golgi body (B) nucleus (C) lysosome (D) peroxisome (E) mitochondria
- ( ) 4. The very first eukaryotic cells may have been: (A) bacteria (B) archaea (C) protists (D) algae (E) fungi
- ( ) 5. What is the science of naming and classifying species called? (A) taxonomy (B) evolution (C) biogeography (D) herpetology (E) biometry
- ( ) 6. 人類細胞和細菌置於低張溶液下，觀察其外表型態變化，下列何者正確？(A) 人類細胞漲破 (B) 細菌萎縮 (C) 細菌漲破 (D) 人類細胞型態不變 (E) 人類細胞萎縮
- ( ) 7. Which of the following allow the bacteria to join together to transfer genes? (A) flagella (B) spores (C) fimbriae (D) pili (E) cilia
- ( ) 8. Mycorrhizae are \_\_\_\_\_ found in agricultural soils. (A) roots (B) bacteria (C) fungus roots (D) isolated plants (E) small animals
- ( ) 9. The openings in leaves that function to exchange gases are called: (A) cuticles (B) stomata (C) guard cells (D) pits (E) pores
- ( ) 10. The appearance of herbicide resistant genes in weeds is an example of: (A) genetic drift (B) mutation (C) a founder effect (D) gene flow (E) degenerative evolution
- ( ) 11. 基因的產物通常為：(A) 澱粉 (B) 醣類 (C) 脂肪 (D) 脂肪酸 (E) 蛋白質
- ( ) 12. 核苷酸的組成不包含下列何種物質？(A) 五碳核糖 (B) 脂肪酸 (C) 氮鹼基 (D) 磷酸 (E) 五碳去氧核糖
- ( ) 13. 下列何者不適合使用於親緣 DNA 鑑定？(A) 肝臟細胞 (B) 口腔黏膜細胞 (C) 肌肉細胞 (D) 紅血球 (E) 白血球
- ( ) 14. 有關 DNA semiconservative replication 的敘述，下列何者正確？(A) 新複製的 DNA 只剩一股 (B) 新複製的 DNA 分子量剩一半 (C) 新複製的 DNA 遺傳訊息保留一半 (D) 新複製的 DNA 分子都含有一個新股及一個舊股 (E) 新複製的 DNA 變成三股
- ( ) 15. 目前已知所有基因的起始密碼為：(A) CAT (B) ATG (C) ATT (D) GGA (E) TTG
- ( ) 16. 關於 RNA 分子的敘述，下列何者錯誤？(A) 通常為單股 (B) 可作為遺傳物質 (C) 在鹼性溶液中會被水解 (D) 具有五碳核糖 (E) 具有胸腺嘧啶(T)
- ( ) 17. Which of the following organisms exhibits cephalization? (A) flatworms (B) sea anemone (C) sea star (D) sponge (E) jellyfish

- ( ) 18. Which of the following features is often seen among the roundworms and the arthropods? (A) periodically shed their outer covering (B) radial symmetry (C) endoskeleton (D) undergo metamorphosis (E) asexual reproduction
- ( ) 19. Snails are examples of: (A) cephalopods (B) pseudopods (C) monopods (D) gastropods (E) polypods
- ( ) 20. Which feature is found in the bony fish but not in the cartilaginous fish? (A) swim bladder (B) lateral line system for detecting prey (C) endothermy (D) ectothermy (E) sexual reproduction
- ( ) 21. The notochord is most closely related to the: (A) nervous system (B) spinal cord (C) skeletal system (D) skin system (E) brain
- ( ) 22. Where would be the best place to search for fossils? (A) an area that was formerly a desert (B) an area that was formerly a mountain (C) an area that is currently a desert but once was an ocean (D) an area that is currently an ocean but was formerly a desert (E) an area that is currently an mountain but was formerly a desert
- ( ) 23. 下列何種人類抗體會出現在乳汁中？(A) IgA (B) IgG (C) Ig D (D) IgE (E) IgY
- ( ) 24. 為何 A、B 和 AB 型血型的人，可以接受 O 型人的捐血？(A) O 型人紅血球沒有 A 及 B 抗原 (B) O 型人紅血球上有 A 及 B 抗原 (C) O 型人血清中有抗 A 及抗 B 抗體 (D) O 型人血清中沒有抗 A 及抗 B 抗體 (E) O 型人紅血球上有 D 抗原
- ( ) 25. 人類體液性免疫是指何種細胞的作用？(A) 巨噬細胞 (B) 自然殺手細胞 (C) T 細胞 (D) 肥大細胞 (E) B 細胞
- ( ) 26. 關於人類主動免疫疫苗敘述，下列何者不正確？(A) 有記憶性 (B) 可終身免疫 (C) 通常借用大型動物生產 (D) B 型肝炎基因工程疫苗為其中之一 (E) 主要施打抗原
- ( ) 27. What type of fiber is responsible for the strength of various connective tissues? ( A ) elastic (B) collagen (C) actin (D) reticular (E) myosin
- ( ) 28. Insects use \_\_\_\_\_ as a respiratory system. (A) integument exchange (B) lungs (C) tracheal exchange (D) gills (E) skin
- ( ) 29. The vertebrate lung first evolved in which organism? (A) fish (B) amphibians (C) reptiles (D) birds (E) mammals
- ( ) 30. In order to maximize diffusion across the surfaces of a gill, oxygen-rich water flows in the opposite direction of oxygen-poor blood. This concept is called: (A) reverse expiration (B) pneumonectomy (C) countercurrent flow (D) partial pressure saturation (E) concurrent flow
- ( ) 31. Which group of vertebrates has the most efficient lungs? (A) amphibians (B) mammals (C) birds (D) fish (E) reptiles
- ( ) 32. Which of the following organisms has a closed circulatory system? (A) flatworm (B) hydra (C) earthworm (D) sponge (E) insect
- ( ) 33. Blood flow distribution in the body can be adjusted by changing the diameter of the:

- (A) arteries (B) capillaries (C) arterioles (D) veins (E) venules
- ( ) 34. If a small vessel is torn, which component of the blood will temporarily fill the breach?  
(A) plasma (B) leukocytes (C) platelets (D) red blood cells (E) serum
- ( ) 35. Which group of vertebrates will lack a pulmonary circuit? (A) fish (B) frogs (C) birds  
(D) annelids (E) arthropods
- ( ) 36. 二氧化碳在人體內主要是以何種方式存於血漿中被運輸？(A) 形成  $\text{HCO}_3^-$  (B)  
直接溶於血漿中 (C) 與血紅素結合 (D) 與蛋白結合 (E) 與肌紅素結合
- ( ) 37. Which of the following characteristics is NOT found in the amphibians? (A) thin moist  
skin (B) two-chambered heart (C) small inefficient lungs (D) aquatic larvae (E)  
breathing
- ( ) 38. In which animal would you expect to find a crop as a part of the digestive system? (A)  
flatworm (B) frog (C) tiger (D) horse (E) earthworm
- ( ) 39. Fats that your body tissue cannot synthesize are called: (A) essential fatty acids (B)  
triglycerides (C) phospholipids (D) saturated fats (E) sterols
- ( ) 40. If you were to consume too much vitamin C what would happen? (A) It would be  
stored in your adipose tissue. (B) It would be stored in your liver. (C) You would  
metabolize it for energy. (D) You would eliminate it in your urine. (E) It would be  
stored in your muscle.
- ( ) 41. 關於脊椎動的神經元，下列敘述何者錯誤？(A) 神經元就是神經細胞 (B) 分為感  
覺、運動和聯絡三大類 (C) 細胞本體接收神經訊息 (D) 軸突將訊息傳送下一  
神經細胞 (E) 神經訊息的傳遞需依靠神經傳遞物質
- ( ) 42. The part of the brain that controls the anterior pituitary gland secretions is the? (A)  
medulla (B) thalamus (C) cerebral cortex (D) hypothalamus (E) cerebellum
- ( ) 43. 人類代謝後的含氮廢棄物，在何種器官代謝形成尿素？(A) 腎臟 (B) 心臟 (C)  
脾臟 (D) 胰臟 (E) 肝臟
- ( ) 44. The nitrogenous waste material of an embryo that accumulates inside the eggshell of a  
bird is: (A) urea (B) uric acid (C) amino acid (D) ammonia (E) amine
- ( ) 45. 人類愛滋病病毒主要是攻擊何種免疫細胞？(A) B 細胞 (B) T 輔助型細胞 (C) T  
毒殺型細胞 (D) 嗜中性球 (E) 肥大細胞
- ( ) 46. 關於狂牛症的敘述，下列何者錯誤？(A) 通常食用來自疫區受狂牛病變性蛋白質  
污染之牛羊的內臟、脊髓 (B) 與傳染性蛋白粒子(prion)有關 (C) 傳染性蛋白  
粒子(prion)具耐熱性、耐化學處理，也不易用蛋白酶分解 (D) 目前已有良好  
疫苗治療 (E) 導致智力衰退，精神障礙等癡呆症狀，多數患者在發病後一年  
內死亡
- ( ) 47. 造成韓國 MERS 疫情的病原菌為：(A) 冠狀病毒 (B) 流行性感冒病毒 (C) 疱疹  
病毒 (D) 腸病毒 (E) 伊波拉病毒
- ( ) 48. The primitive template that was thought to be used for forming chains that resemble  
proteins or nucleic acids was: (A) stratified mica crystals (B) clay compounds (C)

- the bottom of tidal pools (D) dried-out mud flats (E) pockets in lava beds
- ( ) 49. Which of the following organisms have an exoskeleton? (A) annelids (B) arthropods  
(C) cnidarians (D) roundworms (E) flatworms
- ( ) 50. Galapagos finch diversity is an example of: (A) stasis (B) morphological convergence  
(C) macroevolution (D) adaptive radiation (E) mass distinction