

1. All of the following favour the dissociation of oxyhemoglobin to deliver O_2 to tissues except – 以下所有都支持氧合血紅蛋白的解離以將 O_2 輸送到組織，除了 –

- A. $PO_2 = \uparrow$
- B. $PCO_2 = \uparrow$ or $H^+ = \uparrow$
- C. Temperature 溫度 = \uparrow
- D. $PO_2 = \downarrow$

2. The partial pressure of oxygen and the partial pressure of carbon dioxide is identical in 氧氣分壓和二氧化碳分壓相等

- A. Alveoli and deoxygenated blood 肺泡和脫氧血
- B. Tissues and deoxygenated blood 組織和脫氧血液
- C. Oxygenated blood and tissues 含氧血液和組織
- D. Tissues and oxygenated blood 組織和含氧血液

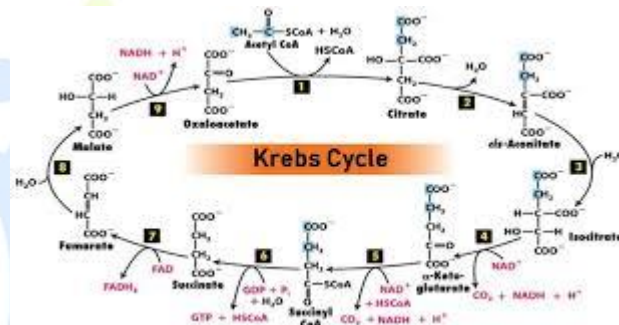
3. During prolonged fastings, in what sequence are the following organic compounds used up by the body? 在長時間禁食期間，身體以什麼順序消耗以下有機化合物？

- A. First carbohydrates, next fats and lastly proteins 首先是碳水化合物，其次是脂肪，最後是蛋白質
- B. First fats, next carbohydrates and lastly proteins 首先是脂肪，其次是碳水化合物，最後是蛋白質
- C. First carbohydrates, next proteins and lastly lipids 首先是碳水化合物，其次是蛋白質，最後是脂質
- D. First proteins, next lipids and lastly carbohydrates 首先是蛋白質，其次是脂質，最後是碳水化合物

4. How many molecules of O_2 are used and how many CO_2 comes out during the glycolytic breakdown of one glucose molecule? 在一個葡萄糖分子的糖酵解過程中，使用了多少 O_2 分子以及釋放了多少 CO_2 ？

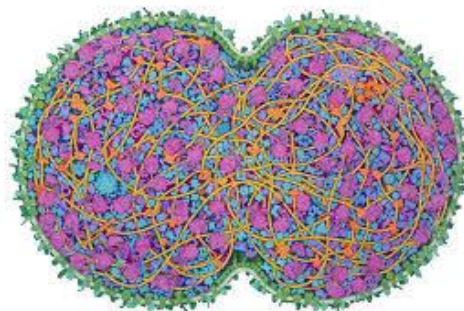
- A. 1; 2
- B. 2; 1
- C. 0; 0
- D. 36; 6

5. Which of the following is made during the Krebs Cycle? 以下哪項是在克雷布斯循環期間產生的？



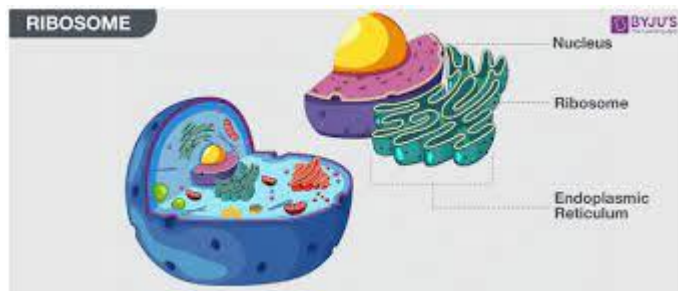
- A. Carbon Dioxide 二氧化碳
- B. Glucose 葡萄糖
- C. Oxygen Gas 氧氣
- D. Water 水

6. The longest cell in human body is 人體最長的細胞是



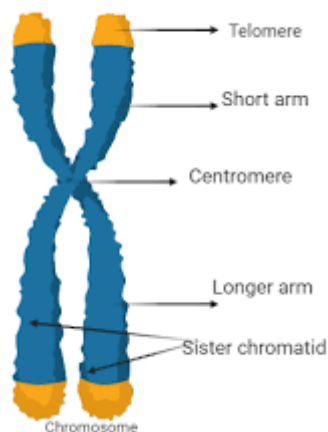
- A. Red blood cell 紅細胞
- B. Nerve cell 神經細胞
- C. Muscle cell 肌細胞
- D. Fat cell 脂肪細胞

7. Which of the following statement is incorrect regarding ribosome? 以下哪項關於核糖體的陳述是不正確的?



- A. Can be observed through high magnification light microscope 可通過高倍光學顯微鏡觀察
- B. Appear as granular structure under the electron microscope 電子顯微鏡下呈粒狀結構
- C. Eukaryotic ribosome and prokaryotic ribosome consist only one type of common ribosomal RNA 真核核糖體和原核核糖體僅由一種常見的核糖體 RNA 組成
- D. The three domains of prokaryote is based on 16S ribosomal RNA genes 原核的三個結構域是基於 16S 核糖體 RNA 核糖核酸基因

8. The shorter and longer arms of a submetacentric chromosome are referred to as 亞中心染色體的短臂和長臂分別稱為



- A. s-arm and l-arm respectively s-arm 和 l-arm 分別
- B. p-arm and q-arm respectively p-arm 和 q-arm 分別
- C. q-arm and p-arm respectively q-arm 和 p-arm 分別
- D. m-arm and n-arm respectively m-arm 和 n-arm 分別

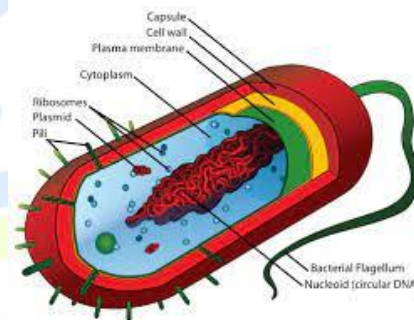
9. If a dicot stem has 100 dark and light rings on the cut surface then the age of the plant will be 如果雙子葉植物莖的切面有 100 個深色和淺色環，則植物的年齡將為

- A. 100 years 年
- B. 75 years 年
- C. 50 years 年
- D. 25 years 年

10. Which of the following is not a component of the Stomatal apparatus? 以下哪一項不是氣孔裝置的組成部分?

- A. Stomatal pore 氣孔
- B. Guard cells 保衛細胞
- C. Subsidiary cells 附屬細胞
- D. Epidermis 表皮

11. Multicellular with loose tissue body organisation is a characteristic feature of 具有疏鬆組織體組織的多細胞是其特徵



- A. Monera 原核生物界
- B. Protista 原生生物
- C. Plantae 植物科
- D. Fungi 真菌

12. Chromosomes in bacterial cell can be 細菌細胞中的染色體可以是

- A. One in number, and linear 在數量上是單一的，並且是線性的
- B. Two in number and circular 數量為二，圓形
- C. Can be either linear or circular, but never both 可以是線性的也可以是圓形的，但不能兩者兼而有之
- D. Is always one in number and circular 總是一個數並且是循環的

13. Bacterial cell divides every one minute. It takes 15 minutes a cup to be one forth full. How much time will it take to fill the cup? 細菌細胞每隔一分鐘分裂一次。一杯滿四分之一需要 15 分鐘。裝滿杯子需要多少時間?

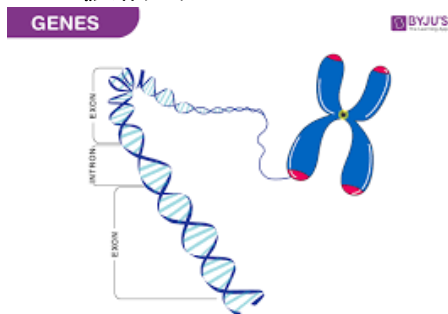


- A. 30 minutes 分鐘
- B. 45 minutes 分鐘
- C. 60 minutes 分鐘
- D. 17 minutes 分鐘

14. Unicellular, colonial, filamentous, marine or terrestrial forms. 單細胞、殖民地、絲狀、海洋或陸地形式。

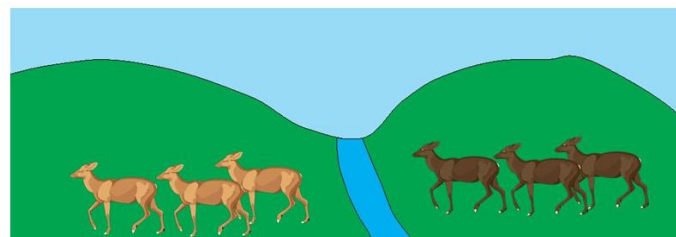
- A. Archaeobacteria 古細菌
- B. Cyanobacteria 藍細菌
- C. Chrysophytes 金藻
- D. Dinoflagellates 甲藻

15. When there is a difference in population based on genes, it is said to be a _____. 當基於基因的人口存在差異時，它被稱為_____。



- A. Mutation 突變
- B. Speciation 形態
- C. Extinction 滅絕
- D. Genetic Variation 遺傳變異

16. These two populations of deer have been split by the river. What fails to occur? 這兩個鹿群被河流分開了。什麼沒有發生?



- A. gene flow between the populations 種群間的基因流動
- B. genetic drift 遺傳漂移
- C. mutations in the populations' DNA 種群 DNA 的突變
- D. natural selection 自然選擇

17. A rabbit population exhibits variation in fur coat thickness in a temperate habitat. A gradual and lasting cooling in the habitat's climate decreases the diversity of the rabbits' fur coat thickness. Which of the following is the best reason for this decrease? 兔子種群在溫帶棲息地表現出毛皮厚度的變化。棲息地氣候的逐漸和持續冷卻降低了兔子毛皮厚度的多樣性。以下哪項是造成這種下降的最佳原因?

- A. Only rabbits with a brighter fur coat will survive. 只有皮毛顏色更亮的兔子才能存活下來。
- B. Only rabbits with a darker fur coat will survive. 只有皮毛較深的兔子才能存活。
- C. Only rabbits with a thinner fur coat will survive. 只有皮毛較薄的兔子才能存活。
- D. Only rabbits with a thicker fur coat will survive. 只有毛皮較厚的兔子才能生存。

18. This image shows a _____ 這張圖片顯示了一個_____

Cross: Aa x Aa

	A	a
A	AA	Aa
a	Aa	aa

A. Punnett Square 旁氏表

B. Phenotype 表型

C. Pedigree 系譜

D. Homozygous Dominant genotype 純合顯性基因型

19. two alleles/letters for one trait that are the same (Ex: DD or dd) 相同性狀的兩個等位基因/字母 (例如: DD 或 dd)

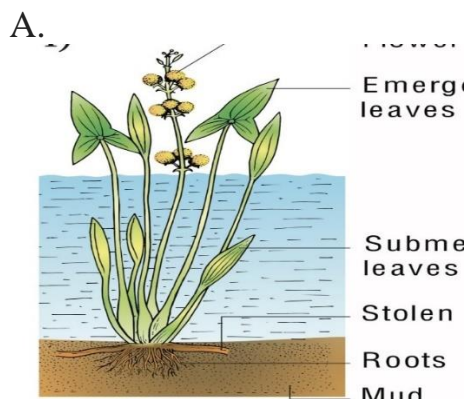
A. phenotype 表型

B. genotype. 基因型

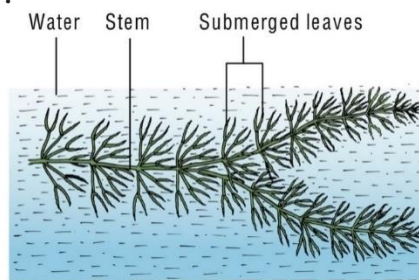
C. homozygous 純合子

D. heterozygous 雜合子

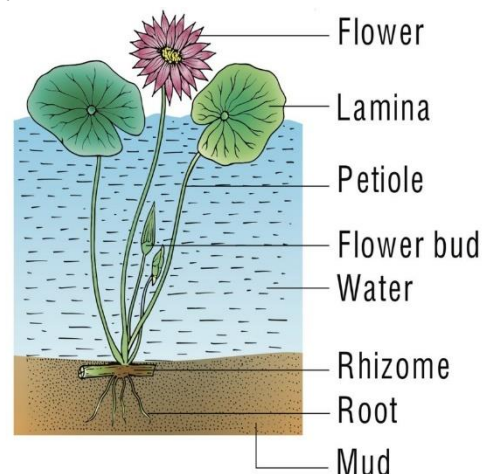
20. Identify a Vallisneria plant 識別苦草屬植物



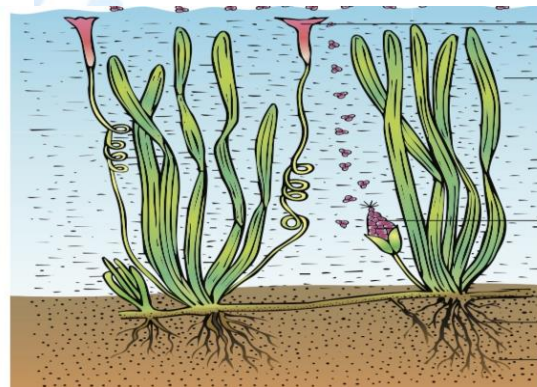
B.



C.



D.



21. A person has vital capacity of 5L and residual volume of 1 L. Total lung capacity in L. Write answer in number

一個人的肺活量為 5 升，殘氣量為 1 升。總肺活量為……。升。用數字寫答案

Answer (in number): 答案 (數字)

22. The number of substrate level phosphorylations in one turn of citric acid cycle is Write answer in number 檸檬酸循環一圈底物水平磷酸化的次數為.....用數字寫答案

Answer (in number) 答案 (數字) :

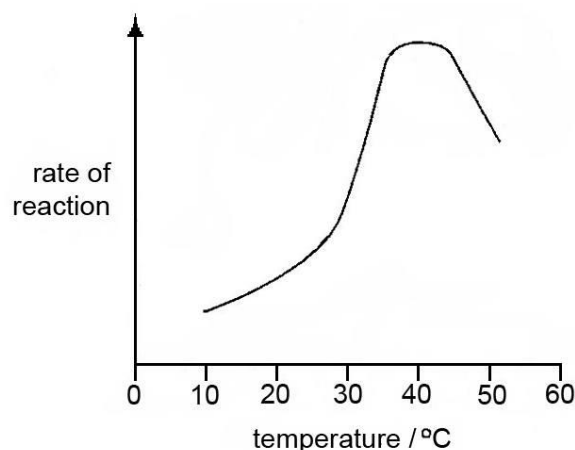
23. Each centriole has a cart wheel organisation having a whorl of tubulin fibrils at periphery. These peripheral fibrils are composed of how many microtubules? Write answer in number 每個中心粒都有一個車輪組織，周圍有一圈微管蛋白原纖維。這些外周原纖維由多少微管組成？用數字寫答案

Answer (in number) 答案 (數字) :

24. What will be the content of DNA in somatic cell at G2, if its meiotic products have 20 picogram(pg) amount of DNA? Write answer in number 如果其減數分裂產物有 20 皮克 (pg) 量的 DNA，G2 期體細胞中的 DNA 含量是多少？用數字寫答案

Answer (in number) 答案 (數字) :

25. The graph shows the effect of temperature on the digestion of starch. 該圖顯示了溫度對澱粉消化的影響。



At which temperature are starch molecules broken down most rapidly? Write answer in number 在什麼溫度下澱粉分子分解最快？用數字寫答案

Answer (in number) 答案 (數字) :
