

《107 生物》

選擇題（單選題，共 50 題，每題 2 分，共 100 分，答錯 1 題倒扣 0.5 分，倒扣至本大題零分為止，未作答時，不給分亦不扣分）

(D) 4. 下列何處是製造膽鹽(bile salt)的地方？

- (A) 胰臟 (B) 膽囊 (C) 十二指腸 (D) 肝臟

生物講義第(五)回 Page. 91 範例2 完全命中

【範例】

1. Based on their effects, which pair below could be considered antagonistic?
 - A. prostaglandin F and nitric oxide.
 - B. growth hormone and ecdysone.
 - C. endocrine and exocrine glands.
 - D. hormones and target cells.
 - E. neurosecretory cells and neurotransmitters.
2. What is the mode of action of aspirin and ibuprofen?
 - A. They inhibit the synthesis of prostaglandins.
 - B. They inhibit the release of nitric oxide, a potent vasodilator.
 - C. They block paracrine signaling pathways.
 - D. They stimulate the release of oxytocin.
 - E. They stimulate the release of endorphins.

(C) 24. 細胞外基質(extracellular matrix)能透過 傳遞胞外訊號影響胞內基因的表現。

- (A) 膠原蛋白(collagen) (B) 原生質絲(plasmodesmata)
(C) 整合素(integrin) (D) 間隙連結(gap junction)

生物講義第(一)回 Page. 282 【試題觀摩】第2題 完全命中

【試題觀摩】

1. Which organelle is the primary site of ATP synthesis in eukaryotic cells?
 - (A) lysosome (B) vacuole (C) mitochondrion (D) Golgi apparatus (E) peroxisome
2. Signals between the ECM and the cytoskeleton may be transmitted by
 - (A) fibronectin. (B) proteoglycans. (C) integrins. (D) collagen. (E) middle lamella.
3. Ions can travel directly from the cytoplasm of one animal cell to the cytoplasm of an adjacent cell through
 - (A) plasmodesmata. (B) intermediate filaments. (C) tight junctions. (D) desmosomes. (E) gap junctions.

- (C) 35. 具有適中長度翅膀的鳥比同一族群中長翅膀及短翅膀的鳥，更能在暴風雨的侵襲後存活，這說明：
- (A) 奠基者效應(the founder effect) (B) 人工選擇(artificial selection)
(C) 穩定型選擇(stabilizing selection) (D) 分裂性淘汰(disruptive selection)

生物講義第(八)回 Page. 54 範例1 幾乎一樣

【範例】

1. Sparrows with average-sized wings survive severe storms better than those with longer or shorter wings, illustrating
- (A) the bottleneck effect.
(B) stabilizing selection.
(C) frequency-dependent selection.
(D) natural variation.
(E) disruptive selection.

- (D) 36. 如果古菌(archaea)在演化過程中較接近真核細胞，而與細菌較遠，下列何者為較合理的推論：
- (A) Archaeal DNA 應該沒有intron
(B) Archaeal 染色體應該沒有蛋白質與其結合
(C) Archaeal DNA 應該為單股
(D) Archaeal 核糖體應該比細菌的核糖體大

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3. If archaea are more closely related to eukaryotes than to bacteria, then which of the following is a reasonable proposal?
- A. Archaeal DNA should have no introns.
B. Archaeal chromosomes should have no protein bonded to them.
C. Archaeal DNA should be single-stranded.
D. Archaeal ribosomes should be larger than typical prokaryotic ribosomes.
E. Archaea should lack cell walls.

(C) 40. 腦幹呼吸中樞對下列何種刺激反應最為敏感？

- (A) O₂ 減少 (B) H⁺減少 (C) CO₂ 增加 (D) O₂ 增加

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4. The blood level of which gas is most important in controlling human respiration rate?
- a. nitric acid.
 - B. nitrogen.
 - C. oxygen.
 - D. carbon dioxide.
 - E. carbon monoxide.

(C) 46. 食鹽中加碘主要是為了維持 功能正常。

- (A) 副甲狀腺(parathyroid gland) (B) 腎上腺(adrenal gland)
(C) 甲狀腺(thyroid gland) (D) 胰臟(pancreas)

生物講義第(五)回 Page. 148 範例3 幾乎一樣

比較動物生理學：內分泌系統

【範例】

1. One reason a person might be severely overweight is due to
 - A. an undersecretion of thyroxine.
 - B. a defect in hormone release from the posterior pituitary.
 - C. a lower than normal level of insulin-like growth factors.
 - D. hyopsecretion of oxytocin.
 - E. a higher than normal level of endorphins.
2. Which of the following is the most likely explanation for hypothyroidism in a patient whose iodine level is normal?
 - A. a disproportionate production of T₃ to T₄.
 - B. hyopsecretion of TSH.
 - C. hypersecretion of TSH.
 - D. hypersecretion of MSH.
 - E. a decrease in the thyroid secretion of calcitonin.
3. Iodine is added to commercially-prepared table salt to help prevent deficiencies of this essential mineral. Which gland(s) require(s) iodine to function properly?
 - A. parathyroids.
 - B. adrenal.
 - C. thyroid.
 - D. pancreas.
 - E. ovaries and testes.