

臺灣綜合大學系統 111 學年度學士班轉學生聯合招生考試試題

科目名稱	自然科學	類組代碼	B33
		科目碼	B3391

※本項考試依簡章規定所有考科均「不可」使用計算機。

本科試題共計 2 頁

請將答案寫在答案紙上

一、是非題 (每題 2.5 分，共 25 分)

1. The most abundant anion of seawater is SO_4^{2-} .
2. Salts (such as NaCl) can easily dissolve in water.
3. Seawater density increases with increasing salinity.
4. The partial pressure of CO_2 in the atmosphere has increased in the past 60 years.
5. Seawater pH value has also increased in the past 60 years.
6. Nitrate (NO_3^-) is one of nutrients in seawater.
7. Dissolved oxygen concentration is dominated by photosynthesis and respiration or remineralization in seawater.
8. Eutrophication (優養化) is a nutrient pollution in the coastal ocean.
9. The variation in salinity from the North Pacific Ocean to the South Pacific Ocean is only affected by temperature.
10. K-40 is an artificial radioactive element.

二、單選題 (每題 2.5 分，共 25 分)

1. Which in the following is not a common property of life?
(A) reproduction (B) vision (C) energy processing (D) response to the environment
2. Which group in the following is not one of the three domains of life?
(A) bacteria (B) archaea (C) eukarya (D) fungi
3. Starch is a polymer of
(A) glucose (B) fructose (C) amino acids (D) lipids
4. A shortage of phosphorus in the soil would make it especially difficult for a plant to synthesize (A) protein (B) DNA (C) starch (D) cellulose
5. Which in the following can form the most hydrogen bonds with water?
(A) chlorophyll (B) cholesterol (C) fatty acids (D) glucose
6. What kind of molecules in the following is the major component in cell membrane?
(A) phospholipids (B) protein (C) triacylglycerol (D) cholesterol

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7. The major function of mitochondria is to synthesize
(A) RNA (B) DNA (C) ATP (D) ADP
8. In eukaryotic cells, chromatin is located in
(A) lysosome (B) nucleus (C) ribosome (D) Golgi body
9. The major difference between plant cells and animal cells is
(A) plasmamembrane (B) microtubule (C) cell wall (D) endoplasmic reticulum
10. Which group in the following is not a lineage in the Bilaterians (兩側對稱動物)?
(A) Chordates (脊索動物) (B) Cnidarians (刺絲胞動物) (C) Molluscs (軟體動物)
(D) Nematodes (線蟲類)

三、簡答題 (每題 5 分，共 50 分)

1. What is the tectonic setting (板塊構造) of Taiwan?
2. What is the difference between earthquake magnitude (地震規模) and earthquake intensity (震度)?
3. What is the Benioff zone (班尼奧夫帶)?
4. How do scientists use seismic waves (地震波) to study the internal structure of the earth?
5. How to determine the absolute age (絕對年代) of geological materials?
6. What is the rotating direction for a cyclone (氣旋), a hurricane (颶風), and a typhoon (颱風) in the northern hemisphere?
7. Why are the freezing temperatures of freshwater and seawater different?
8. What is the reason of Coriolis effect (科氏效應/科氏力) in the Earth's ocean?
9. Why does the sea level usually rise when a typhoon approaches the coastline?
10. The Kuroshio (黑潮) is a strong current passing off the eastern coast of Taiwan. What is its role in the global climate system?