

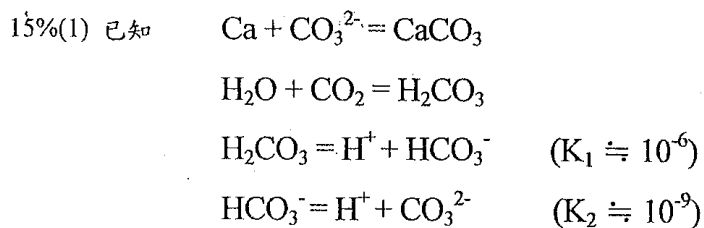
※You don't have to answer everything in English※

1. Contrast the Atlantic and Pacific in terms of the following tracers: nutrients,  $O_2$ , salinity,  $CO_2$ , and  $\delta^{13}C$
2. Tell me the story about the GLOBAL plate tectonics for the last 45 Ma.
3. What is CCD, how does it work and at what depth is it found in the Atlantic and Pacific ?
4. Give the sequence of oxidation reactions of organic matter with depth in deep-sea sediments.
5. What would you find if you drill a hole 10 km below sea floor by east side of Taiwan ?
6. Where can we find siliceous ooze ? Why ?
7. What methods can you use to date marine sediments ?
8. Discuss magnetic anomalies.
9. How does  $O^{18}/O^{16}$  reveal paleoclimatic conditions ?
10. Explain the following terms in **great details** !
  - a. biostratigraphy
  - b. gravity core
  - c. turbidity current
  - d. magnetic susceptibility
  - e. Messinian salinity crisis
  - f. continental shelf
  - g. K/T boundary
  - h. subduction
  - i. Ninety East
  - j. benthic foraminifera

國立中山大學九十三年學年度博士班招生考試試題

科目：海洋化學【海地化所選考】

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海水之 pH 約為 8。在 pH=8 之情況下，試計算海水所溶解之總二氧化碳中， $\text{H}_2\text{CO}_3$ 、 $\text{HCO}_3^-$  及  $\text{CO}_3^{2-}$  各占多少百分比？

25%(2) 海洋中  $\text{CaCO}_3$  之溶解度，受到那些因素控制(10%)？試以上述因素說明，太平洋及大西洋海底沈積物內之  $\text{CaCO}_3$  含量，有何不同，原因何在(15%)？

20%(3) 何謂 (a) JGOFS, (b) LOICZ, (c) upwelling, (d) Redfield ratio?

20%(4) 利用  $^{14}\text{C}$  測定海洋沈積物之沈積速率時，需作那些假設（所得到的沈積速率，是在那些條件下，才有代表性）？

20%(5) 菲律賓海在水深約 1200 m 處，有一個  $\text{NO}_3^-$  之極大值，請說明其成因。