**[5 marks each]**

1. List 5 differences between La Nina and El Nino
2. What makes the Indian Ocean so unique?
3. Draw the ocean circulation you would expect to find in July along the Somali coastline.
4. Where would you find the Cromwell Current.
5. Draw a diagram of a section across the equatorial Pacific that depicts the structure of the winds, and the circulation and thermocline in the upper ocean. In a second diagram, illustrate how these features change during an El Nino event . (20)
6. Draw a flow diagram showing the stages of sea ice formation that you would experience if you were travelling by sea to Antarctica. How would the upwelling of Circumpolar Deep Water affect sea ice distribution?
7. What is meant by the term “polynya”? Explain the two types of polynyas that occur in the Southern Ocean.
8. Describe the atmospheric circulation associated with a Polar Cell. How does it compare to the Hadley Cell?
9. Label the water masses associated with the T/S diagram (in Figure 1). Where in the ocean would you expect to find such characteristics?
10. Name three important factors contributing to the Asian monsoon system.
11. With the aid of two diagrams, explain where you would expect to find two large scale upwelling systems in the open ocean.
12. What makes Antarctic Bottom Water the densest water mass in the ocean?
13. Where would you expect to find the Cromwell Current? Explain how changes in the Coriolis effect result in meanders in its path.

KapexII