

3. Compare freshwater and saline lakes based on the following attributes (1 mark each):
- Amount of energy needed to destroy thermal stratification

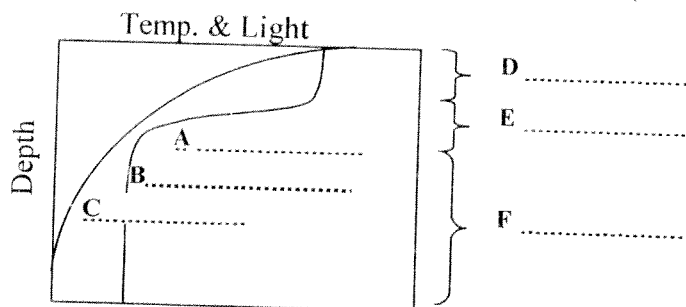
b) Freezing point temperature

c) Biological diversity

d) Rates of evaporation

e) Water viscosity

- 4 a) The diagram below is an illustration of the vertical profile of temperature and light in a thermally stratified lake. Identify the parts labeled A - F (3 marks):



- b) Explain how each of the following physical subsidies present in estuaries contribute to the high productivity in estuaries (1 mark each)
- Particle flocculation

ii) Reduced temperature fluctuation

5. Identify the concept best described by ANY TEN of the following explanations. Provide your answers in the box below (0.5 marks each)

- Lakes that mix once a year, usually throughout winter
- Lakes that are permanently covered by ice and never mix at all
- Lakes that mix only to a certain depth
- Lakes formed by glaciers during their slow movement downslope
- Lakes formed when the loop of a meandering river is cut off by silt deposition

- f) Lakes that form in areas of permafrost when an area of ground is exposed so as to induce melting
- g) The ratio of length to the circumference of a cycle with the same area
- h) Name given to lakes that mix many times in a year
- i) An insoluble polysaccharide that is the food reserve of the euglenoids
- j) Organisms that can survive in a wide range of salinity.

a	b	c
d	e	f
g	h	i
j		

6. a. State ONE major significance of each of the following (1 mark each)

i) The discovery of a salt wedge by J.R. Lorenz in the 1860s

ii) The two expeditions of J.E.S Moore to Lake Tanganyika in the 1890s

- b. State a likely consequence of each of the following events (1 mark each)

i) Melting of ice blocks trapped in moraines

ii) The straightening and canalization of river's course

iii) Top down mixing by meromictic lakes

7. a) Why are benthic freshwater angiosperms restricted to the shallow water zone? (2 marks)

b) Describe the major characteristics of the lower pelagic zone (2 marks)

c) Give the meaning of the term euhydrophytes (1 mark)

8. a) Describe the water movement in a salt wedge and its ecological importance (3 marks)

b) Explain the ecological importance of the salt wedge (2 marks)

SECTION B: (MAXIMUM MARKS 30)

Write an essay on ANY ONE of the following topics:

1. Determination of chlorophyll a in freshwaters
2. Water pollution: causes and control
3. Dissolved oxygen in aquatic ecosystems.