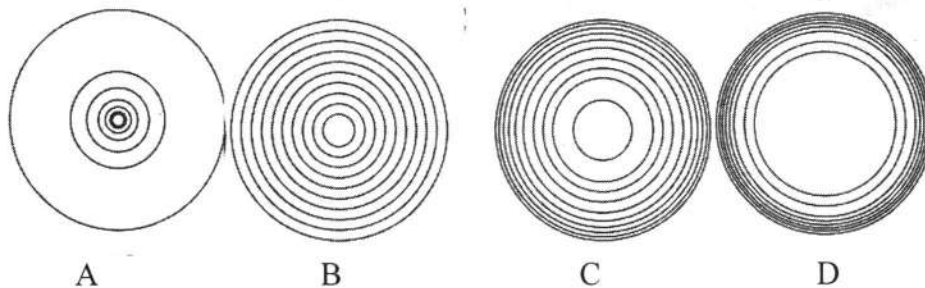




11. Which of the following is wrong about mangroves?  
 Mangroves are characteristics of tropical coastal systems  
 Mangroves are characteristics of temperate coastal systems  
 Mangroves possess huge potential for carbon sequestration  
 Mangroves are crucial against coastal erosions
12. Carcass sinking in deep oceans illustrate \_\_\_\_\_.  
 large particle sinking                       vertical ladder of migration  
 horizontal transport                       bioturbation
13. Excessive Sulphur loading in lakes can result in \_\_\_\_\_.  
 sedimentation     acidification     eutrophication     evaporation
14. Rift valley lakes in Africa represent \_\_\_\_\_.  
 glacial lakes     coastal lakes     tectonic lakes     ox-bow lakes
15. Dystrophic lakes are characterized by \_\_\_\_\_.  
 high DO values     high pH values     low DO values     low pH values
16. Redfield ratio describes the concentrations of \_\_\_\_\_.  
 C, N and S     C, N, and O<sub>2</sub>     C, N and CO<sub>2</sub>     C, N and P
17. The ratio of the length of lakeshore to the circumference of a circle of equal area to the lake is called \_\_\_\_\_.  
 shoreline development index                       Z<sub>max</sub>  
 relative depth                       mean depth

Look at the following schematic bathymetric maps and answer the questions 18 to 20.



18. The concentric lines indicate \_\_\_\_\_.  
 lake depth intervals                       lake temperature profile  
 thermocline                       chemocline
19. Which lake has the widest bottom?  
 Lake A                       Lake B                       Lake C                       Lake D
20. Which lake holds the least volume of water at Z<sub>max</sub>?  
 Lake A                       Lake B                       Lake C                       Lake D

16 JUL 2023

**II. Fill in the blanks.**

[10 marks]

21. The bulk of the oceans are comprised of \_\_\_\_\_ zone.
22. Epiphytic algae are found on \_\_\_\_\_.
23. Glacial meltwater dominated streams are called \_\_\_\_\_ streams.
24. Lakes that mix only once a year are referred to as \_\_\_\_\_.
25. Temperature-based water layers lakes are \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
26. Macroinvertebrate taxa extremely sensitive to pollution are referred to as \_\_\_\_\_ taxa.
27. Three zones of a typical mainstream reservoir are the \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
28. \_\_\_\_\_ is the study of the reconstruction of past environmental changes in lakes and their catchments.
29. \_\_\_\_\_ and \_\_\_\_\_ are recognized as the main drivers of altitudinal limits of species distributions.
30. Graphical representation showing the relationship between lake depth and the volume of water is called \_\_\_\_\_.
31. Osmoregulation maintains \_\_\_\_\_ and \_\_\_\_\_.
32. Extra uptake of available nutrients by plants than needed for functioning is called \_\_\_\_\_.
33. Key factors controlling the rate of food supply to deep water communities are \_\_\_\_\_ and \_\_\_\_\_.

KATHMANDU UNIVERSITY  
End Semester Examination  
June/July, 2023

16 JUL 2023

Level : B.Sc.  
Year : III  
Time : 2 hrs. 30 mins.

Course : ENVS 302  
Semester : II  
F. M. : 55

SECTION "B"

[3Q. × 7 = 21 marks]

Attempt *ALL* questions.

1. List at least five threats to aquatic ecosystems. Give an account of how these threats affect aquatic ecosystems with particular focus on Nepalese context. [1+6]
2. Define lakes. Give an account of different types of lakes based on their origin. [1+6]
3. Define biogeochemical cycles. Give an account of any element cycle in aquatic ecosystems you have studied. Add a brief note on human impacts on biogeochemical cycles. [1+3+3]

SECTION "C"

4. Write short notes on (*ANY FOUR*): [4 × 2 = 8]
  - a. Significance of coral reefs
  - b. Lake types based on nutrient concentration
  - c. Mangroves
  - d. Hypsographic curves
  - e. Major ions in freshwater
5. Differentiate between (*ANY FOUR*): [4 × 2 = 8]
  - a. Anaerobic and anoxic conditions
  - b. Deltas and estuaries
  - c. Epilimnion and Hypolimnion
  - d. Land breeze and sea breeze
  - e. Lakes and reservoirs
6. Give an account of (*ANY THREE*): [3 × 4 = 12]
  - a. Altitudinal shift of aquatic biotic assemblages
  - b. Macroinvertebrate-based scores in Nepal
  - c. Importance of lake bathymetry
  - d. Human impacts on coral reefs
7. Give reasons for the following statements. [4 × 1.5 = 6]
  - a. Upwelling is important for ocean productivity.
  - b. Red chironomid larvae are dominant in hypolimnetic lake and ocean bottom sediments.
  - c. Coral growth cannot occur in the deepest oceanic regions.
  - d. Thermoclines cause stratification of lake/ocean water columns.