

KATHMANDU UNIVERSITY  
End Semester Examination  
February/March, 2019

Mark Scored:

Level : B. Sc.

Course : ENV5 415

Year : IV

Semester: I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date 08 MAR 2019

SECTION "A"

[16 Q. × 0.5 = 8 marks]

Choose and mark (X) against the correct answer:

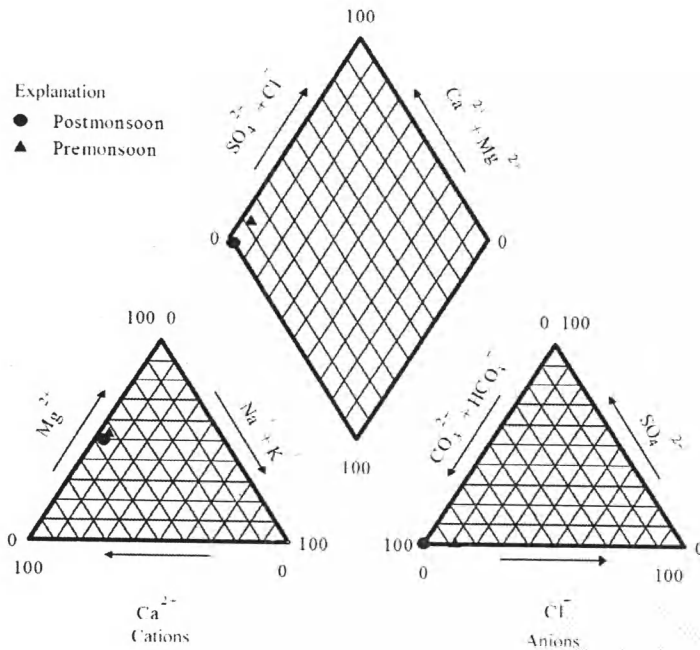
1. Most of the present day lakes are of  
 tectonic origin                       glacial origin  
 volcanic origin                       anthropogenic origin
2. Dystrophic lakes are characterized by  
 high pH values and rich biodiversity     high pH values and poor biodiversity  
 low pH values and rich biodiversity     low pH values and poor biodiversity
3. Inorganic substrates measuring 6-20 cm are called  
 macrolithal     megalithal     mesolithal     microlithal
4. Whale is a  
 zooplankton     phytoplankton     periphyton     nekton
5. Higher SAR values are characterized by  
 lower conductivity and lower sodicity     lower conductivity and higher sodicity  
 higher conductivity and higher sodicity     higher conductivity and lower sodicity
6. The open ocean is referred to as the  
 Pelagic zone     Bathyal zone     Abyssal zone     Hadal zone
7. Which of the following marine ecosystem is the least productive?  
 littoral zone     coastal waters     deep ocean     coral reefs
8. Wetlands control flooding by  
 providing shelter for migratory birds     absorbing water from rivers  
 filtering out pollutants     reducing CO<sub>2</sub> released into the air
9. Riffles are characterized by  
 higher current and higher DO                       higher current and lower DO  
 lower current and higher DO                       lower current and lower DO
10. Excessive phosphate loading in aquatic ecosystems result into  
 eutrophication of water bodies                       sedimentation in water bodies  
 stratification of water bodies                       acidification of water bodies

11. Rheophilic taxa are adapted to  
 current       pressure       temperature       salinity
12. Chironomids belong to order  
 Trichoptera       Plecoptera       Ephemeroptera       Diptera
13. Region of shallow water which lies above the continental shelf is called the  
 pelagic zone       neritic zone       intertidal zone       Hadal zone
14. Trophic interactions linking predators and prey over depth have been described as a  
 *ladder of vertical migration*       top down control  
 bottom up control       predator mediated co-existence
15. Eutrophic lakes are characterized by  
 excessive zooplanktons       excessive phytoplanktons  
 higher DO values       higher Secchi values
16. Shredders feed on  
 FPOM       CPOM       planktons       periphytons

SECTION "B"

[4Q × 0.5 = 2 mark]

Consider the Figure 1 and answer the questions from 17 to 20.



17. The figure shows a \_\_\_\_\_.

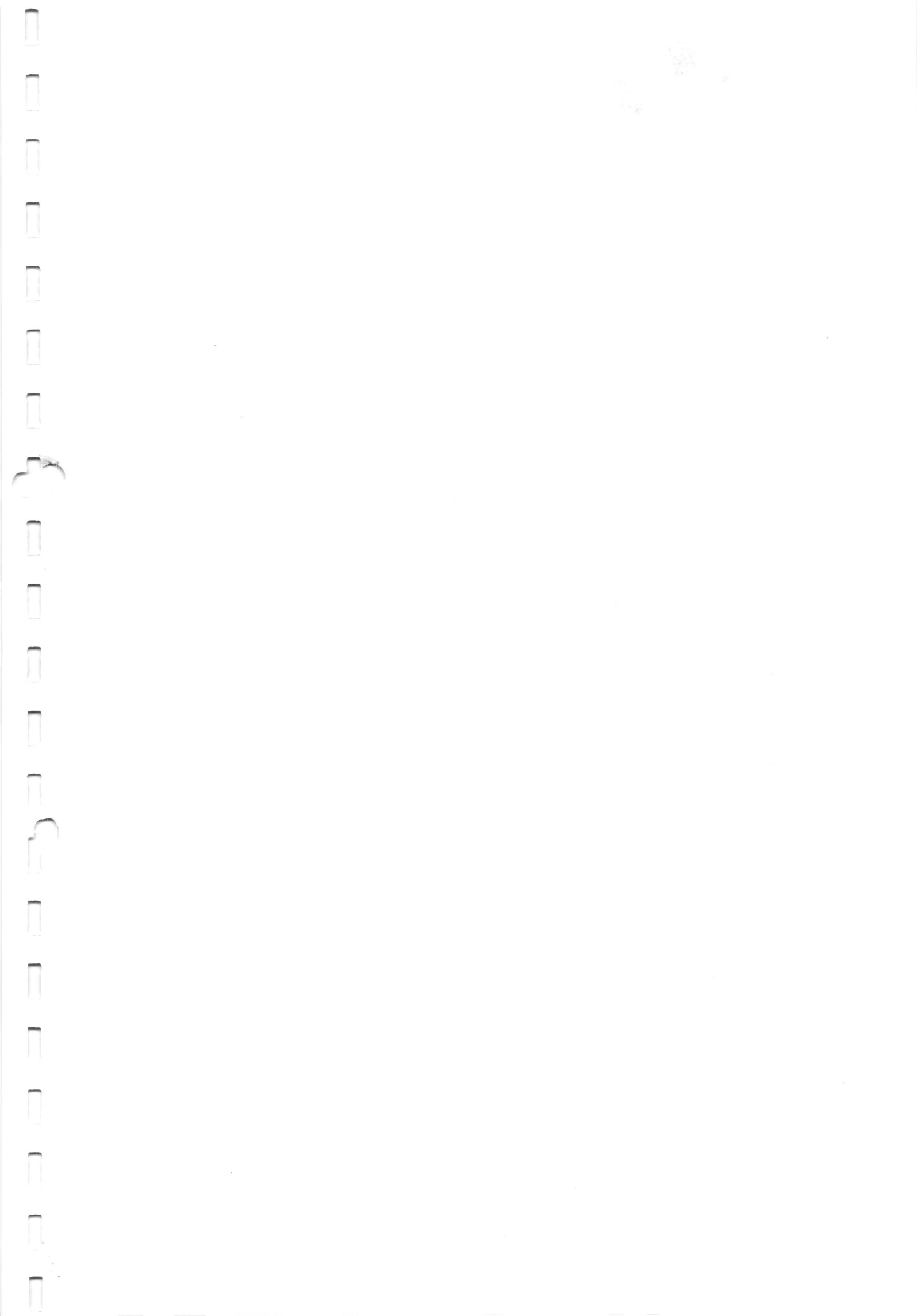
18. The figure provides information about  
 the source of major ions in water bodies  
 the source of heavy metals in water bodies  
 the source of organic pollution in water bodies  
 the source of erosion on water bodies
19. The most dominant cation(s) is/are  
 Ca and Na       Ca and Mg       Na and Mg       Mg and K
20. The most dominant anion is  
  $\text{HCO}_3^-$         $\text{SO}_4^{2-}$         $\text{Cl}^-$         $\text{NO}_3^-$

SECTION "C"

[10 marks]

Fill in the blanks.

21. Zooplanktons provide grazing pressure on \_\_\_\_\_.
22. Epiphytic algae are found on \_\_\_\_\_.
23. The bulk of the ocean is formed by \_\_\_\_\_ zone.
24. EPT assemblages consist of \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
25. The most dominant cation and anion in marine waters are \_\_\_\_\_ and \_\_\_\_\_ respectively.
26. Water transparency is measured by \_\_\_\_\_.
27. \_\_\_\_\_ and \_\_\_\_\_ are the principal nutrients in water bodies.
28. The different zones in a reservoir are \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ zone.
29. Xylophagous taxa feed on \_\_\_\_\_.
30. The cell wall of diatoms is made up of \_\_\_\_\_.
31. Lakes which undergo mixing several times a year are called \_\_\_\_\_.
32. A river before entering into a sea divides up into smaller branches called \_\_\_\_\_.
33. Ring-shaped coral reef which surrounds a lagoon is known as an \_\_\_\_\_.
34. \_\_\_\_\_ form the base of the marine food web.



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SECTION "D"

[3Q. × 7 = 21 marks]

Attempt *ALL* questions.

1. Give an account of seasonal variation in DO profiles in a typical eutrophic and an oligotrophic lake.
2. Describe the upstream and downstream impacts of dams on hydro-morphological features and biotic assemblages in lotic systems citing appropriate examples.
3. Give an account of different ecosystem services of any aquatic ecosystem citing appropriate examples.

SECTION "E"

[34 marks]

4. Write short notes on (*ANY FOUR*) [4Q × 2 = 8]
  - a. Stream order
  - b. Eutrophication
  - c. Si cycle
  - d. River restoration
  - e. Temperature profile of lakes
5. Differentiate between (*ANY FOUR*) [4Q × 2 = 8]
  - a. Top down and bottom up controls
  - b. Deltas and estuaries
  - c. Denitrification and ammonification
  - d. Conservative and non-conservative ions
  - e. Marshes and swamps
6. Give an account of (*ANY THREE*) [3Q × 4 = 12]
  - a. Microbial loops
  - b. Deep sea adaptation
  - c. Tectonic lakes
  - d. Importance of zooplanktons
7. Give reasons for the following statements. [4Q × 1.5 = 6]
  - a. Macrophytes are frequently used as bioremediation agents.
  - b. Salinity is lower in equatorial and temperate oceans.
  - c. Rise in sea level can have negative impacts on coral reefs.
  - d. Dense planktonic growth inhibits macrophyte growth

