

KATHMANDU UNIVERSITY  
End Semester Examination [C]  
July, 2017

marks scored:

Level : B.Sc.  
Year : IV

Course : ENVS 415  
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No. :

Date JUL 11 2017

SECTION "A"

[16 Q × 0.5 = 8 marks]

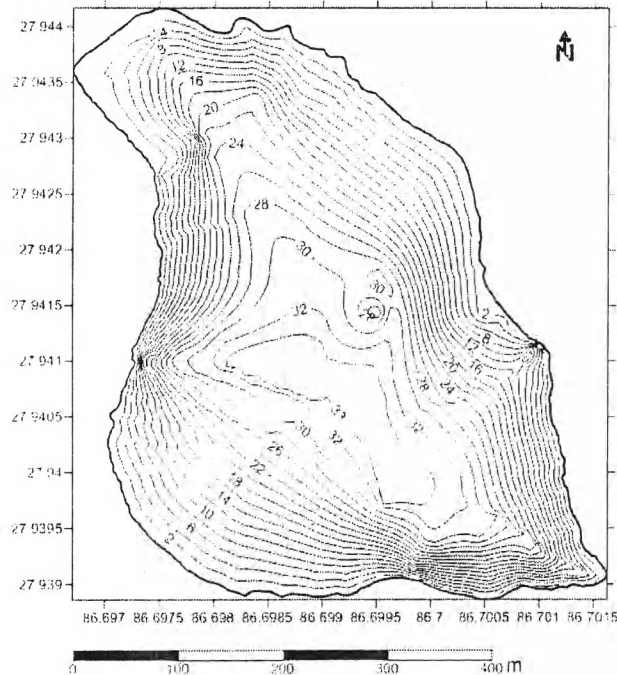
Choose and mark (X) against the correct answer:

1. Stream order was established by  
 Odum                       Strahler                       Hutchinson                       Forbes
2. Taxa that are pollution tolerant are also called  
 mesosaprobic taxa                       xenosaprobic taxa  
 polysaprobic taxa                       oligosaprobic taxa
3. *Microcystis* is a  
 Chlorophyceae     Rhodophyceae     Bacillariophyceae     Cyanophyceae
4. Which of the following statement is incorrect?  
 Macrophytes are aquatic higher plants.  
 Macrophytes are aquatic lower plants.  
 Macrophytes can take up heavy metals.  
 Macrophytes provide shelter to aquatic organisms.
5. High altitude lakes are usually  
 Oligotrophic and N limited                       eutrophic and P limited  
 Oligotrophic and P limited                       eutrophic and N limited
6. Epilithic algae remain attached to  
 macrophytes                       rocks                       bryophytes                       sediments
7. Turtles in oceans represent  
 planktons                       nektons                       periphytons                       neustons
8. Low pH values are characteristics of  
 eutrophic lakes                       mesotrophic lakes  
 Oligotrophic lakes                       dystrophic lakes
9. The principal primary producers of the pelagic zone are  
 phytoplanktons     zooplanktons     coral reefs                       macroalgae
10. The sequential uptake and release of nutrients by biota in lotic systems is best explained by the  
 River Continuum Concept                       Serial Discontinuity Concept  
 Nutrient Spiralling Concept                       Flood Pulse Concept

11. *Potamogeton* is a  
 macrophyte     periphyton     plankton     nekton
12. Caddis flies belong to Order  
 Plecoptera     Trichoptera     Coleoptera     Megaloptera
13. An echo-sounder is used to measure  
 lake surface area     lake depth     lake volume     lake elevation
14. The bulk of the ocean is represented by  
 neritic zone     abyssal zone     hadal zone     bathyal zone
15. Lower concentration of oxygen in the hypolimnion reflects a  
 clinograde profile     orthograde profile  
 positive heterograde profile     negative heterograde profile
16. Which of the following is a top predator?  
 Blue whale     Great white shark  
 Sea kelp     Krill

SECTION "B"

[4Q × 0.5 = 2 marks]



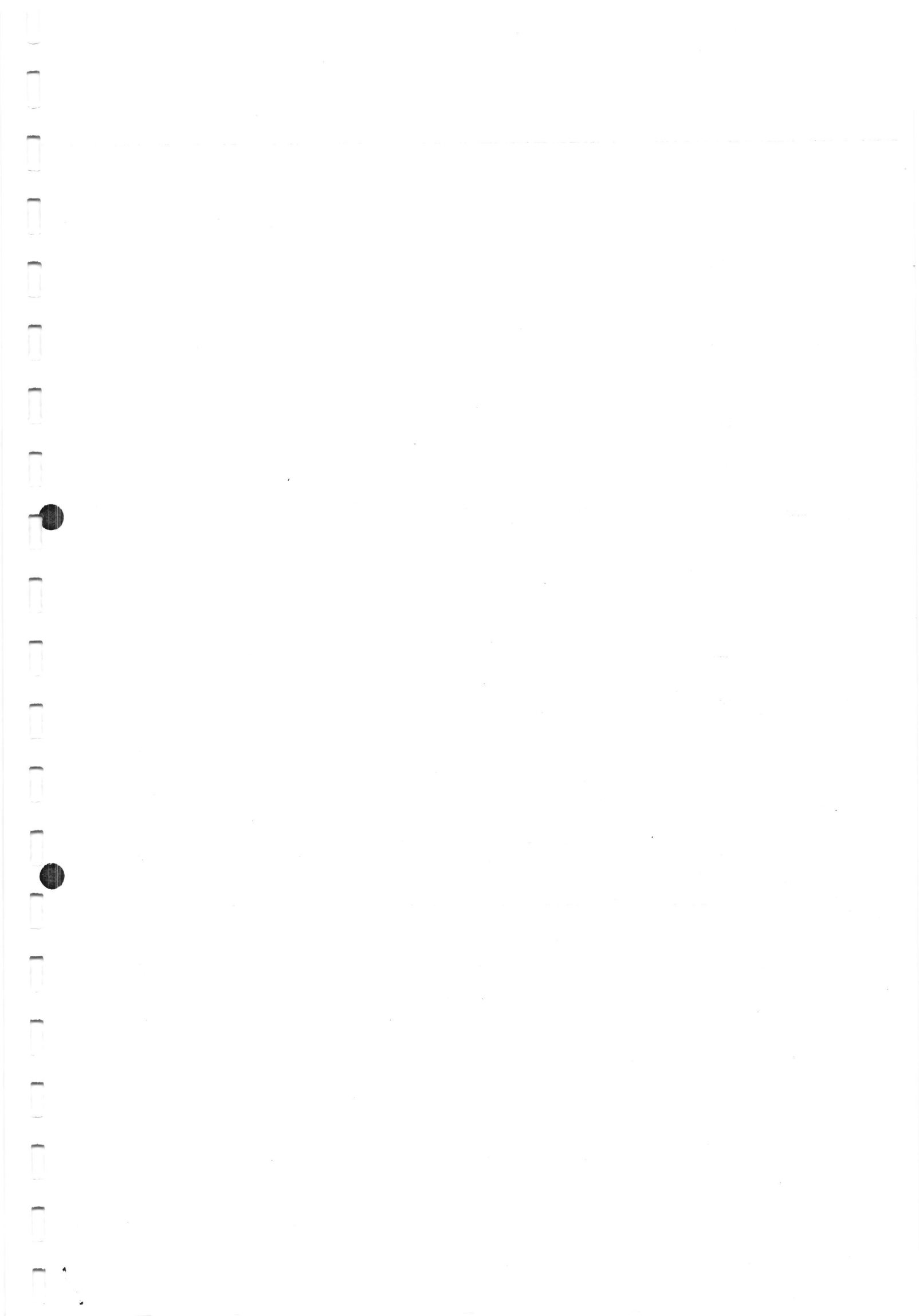
17. The figure shows a \_\_\_\_\_.
18. The  $Z_{\max}$  is \_\_\_\_\_ m.
19. The depth interval is at \_\_\_\_\_.
20. The total number of lake basin is \_\_\_\_\_.

SECTION "C"  
[10 marks]

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Fill in the blanks:

21. The most common cation and anion in freshwaters are \_\_\_\_\_ and \_\_\_\_\_ respectively.
22. Algal blooms are formed by \_\_\_\_\_.
23. The depth at which light penetration does not occur \_\_\_\_\_.
24. Hilsenhoff Index is based on \_\_\_\_\_.
25. The most recent Ramsar site of Nepal is \_\_\_\_\_.
26. Plants take up nitrogen in the form of \_\_\_\_\_.
27. Increase in the concentration of a pollutant/chemical with increase in the trophic level is called \_\_\_\_\_.
28. Thermocline is present in \_\_\_\_\_.
29. The Mississippi belongs to \_\_\_\_\_ stream order.
30. Lakes undergoing mixing several times a year are called \_\_\_\_\_.
31. \_\_\_\_\_ is used to measure lake water transparency.
32. Limnetic features in a reservoir are shown by \_\_\_\_\_.
33. Diatoms incorporate \_\_\_\_\_ in their cell walls.
34. \_\_\_\_\_ occupy the base of the food chain in open oceans.
35. A phylum not found in marine water is \_\_\_\_\_.
36. Macroinvertebrates are trapped by a mesh size of \_\_\_\_\_.
37. Winkler's method is used to estimate \_\_\_\_\_.
38. The deepest trenches in the oceans represent the \_\_\_\_\_.
39. The full form of DMSO is \_\_\_\_\_.



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SECTION "D"

[3 Q. × 7 = 21 marks]

Answer *ANY THREE* of the following.

1. Define a reservoir. Give an account of the characteristic features of the different zonations of a reservoir.
2. List any six important physico-chemical parameters in aquatic ecosystems and explain their significance.
3. Define bioassessment. List any three organisms which can be used as bioindicators. Give an account of the advantages of using bioindicators.
4. Give an account of the formation of different types of lakes with appropriate examples.

SECTION "E"

5. Write short notes on [4Q × 2 = 8]
  - a. Tectonic lakes
  - b. Macroinvertebrate functional feeding groups
  - c. Serial discontinuity concept
  - d. Types of lakes based on mixing
6. Differentiate between (*ANY FOUR*) [4Q × 2 = 8]
  - a. Lotic and lentic systems
  - b. Chemocline and thermocline
  - c. Amictic lakes and monomictic lakes
  - d. El niño and La niña
  - e. Phytoplankton and zooplankton
7. Give an account of (*ANY THREE*) [3Q × 4 = 12]
  - a. Eutrophication
  - b. Oxygen depth profile in lakes
  - c. Summer kill
  - d. Significance of macrophytes
8. Give reasons for the following statements: [4Q × 1.5 = 6]
  - a. Productivity in estuaries is high.
  - b. Mangrove vegetation is important for coastal areas.
  - c. Fossil chironomids are used in Palaeolimnology.
  - d. Shredders are dominant in headwaters.

